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Biologic Products Used In Veterinary Medicine*

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The relation existing between microbian activities and biochemic variations in infected and immune animals is being more clearly comprehended, and it is probable that, *in the not far distant future, each specific infectious disease will be prevented and treated by a specific product of biologic origin.*

The progress of medical science in the last few years has been phenomenal, and probably the most rapid advances have been along the line of biologic products used in diagnosis, prevention and treatment of disease. The rapid strides in this particular phase of medical science are due to the development of microbiology and the persistent investigations upon the subject of immunity.

On first thought, one would be inclined to the belief that in the subject under consideration there would be found an abundance of valuable facts of interest to the veterinarian. However, when one reviews the literature of the present day, such an excessive amount of material is found that it is a laborious task to separate the wheat from the chaff. After due consideration, it was deemed advisable to discuss only those products which have proven efficient in practice or have been demonstrated by experimental investigation to be of value. Although the subject assigned does not clearly include biologic products used in diagnosis of disease, a brief discussion of those agents will be included. It

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was thought best to discuss biologic therapeutic products used in veterinary medicine in three groups, viz.: vaccines, bacterins and serums.

Vaccines.—A vaccine is an attenuated virus. Vaccines are prepared by subjecting the virus to some unfavorable condition, as variation from the optimum temperature, moisture, light, nutritive requirements, etc., for variable lengths of time. They are tested by introducing them into susceptible animals, preferably into the same species of animals in which the vaccines are to be used as therapeutic agents.

In some cases a series of two or more strengths of vaccine is employed. The principle of the action of vaccines depends upon the fact that they produce a mild form of disease, after which the vaccinated animals are immune.

Vaccines should be used as preventative and not as curative agents. The exact mechanism of a vaccination immunity has not been determined, but, in some instances, opsonins and bactericidal substances appear to be important factors. A vaccination immunity varies in different animals and is less intense and of shorter duration than natural immunity.

The principal vaccines used in veterinary medicines are as follows:

Blackleg vaccine, first prepared and used by Arloing, Cornevin, and Thomas. This is usually prepared from the affected muscle of an animal which has died of blackleg. The attenuation is accomplished by heating the muscle infected with the bacillus of blackleg to a fixed temperature for a definite period of time. Blackleg vaccine is put up in three forms, i. e., powder, pill and thread. It is efficient as a prophylactic agent, but it is of no value as a curative agent. The losses after vaccination in most instances do not exceed one-half of one percent.

Anthrax vaccine, probably the first vaccine used in producing an immunity in domestic animals. Pasteur demonstrated the method of immunization of sheep and cattle against anthrax prior to 1880, and in 1881 his experiments were so conclusive and convincing that his method of vaccination against anthrax was adopted in France. The original Pasteur vaccine, with slight modifications, is now extensively employed in anthrax infected regions. The vaccine is prepared by subjecting bouillon cultures of the Bacterium anthracis to a temperature of 42° C. or 43° C. for several successive days. It has been found to diminish the fatality of anthrax in infected regions to about five percent in cattle and nine percent to ten percent in sheep, though disastrous results from its use have occurred in some localities.

The *Bovovaccine* of Behring and Pearson, an attenuated and ground bacterium tuberculosis, usually of human origin, used in the production of immunity in cattle against bovine tuberculosis. The bovovaccine is a modification of Koch's tuberculin R. Undoubtedly, this vaccine will increase the resistance of some animals to tuberculosis, but it is dangerous to administer and the results thus far have not been uniform. Unless the methods of preparation and administration are simplified and

the results obtained more positive, bovovaccine will not assume a very prominent position in biologic therapeutics.

Antirabic vaccine, first used in 1885 by Pasteur in the immunization of man against rabies. Although it has been extensively used for the last twenty years for the prevention of rabies in the human, it is of comparatively recent date that it has been used in veterinary medicine. Its use by veterinarians has been made possible by its preparation in a form that can be sent to the practitioner at a point remote from the laboratory. Such a vaccine is of inestimable value in the control of rabies and it is of considerable economic importance to the live stock industry. The scheme of treatment for the human has long since been accurately determined, but the exact dosage for the lower animals was not until recently approximately estimated.

Antirabic vaccine is prepared from the spinal cord of rabbits that have died as a result of an inoculation with fixed virus. The cords are attenuated by desiccation, at a temperature not to exceed 22° C., in sterile jars containing caustic soda. Dr. Nisbet, of the American Biologic Company, Kansas City, has treated one horse, three mules, and five dogs since January 1, 1911. The horse, the three mules and one dog were bitten by dogs, which were found by microscopic examination to be rabid. An untreated cow, bitten the same day by the dog which bit the treated horse and one mule, died four weeks later of rabies.

Record of treatment administered to horse (case No. 58) at Kansas City Veterinary College, from March 6 to March 23, 1911, inclusive. (Same used as general scheme of treatment for horses and mules.)

DOSE	PREPARED	AGE OF CORD	NO. OF CORD	TO BE GIVEN
No. 1	Mar. 6, '11, 10 a. m.	*5 Cc. 8-day	2233 E	1st day, 10 a. m.
No. 2	Mar. 6, '11, 10 a. m.	5 Cc. 7-day	2070 H	1st day, 2 p. m.
No. 3	Mar. 6, '11, 10 a. m.	5 Cc. 6-day	2070 H	1st day, 6 p. m.
No. 4	Mar. 7, '11, 10 a. m.	5 Cc. 5-day	2233 B	2nd day, a. m.
No. 5	Mar. 7, '11, 10 a. m.	5 Cc. 4-day	2070 F	2nd day, p. m.
No. 6	Mar. 8, '11, 10 a. m.	5 Cc. 3-day	2233 D	3rd day, a. m.
No. 7	Mar. 9, '11, 10 a. m.	5 Cc. 2-day	2071 J	4th day, a. m.
No. 8	Mar. 10, '11, 10 a. m.	4 Cc. 2-day	2070 H	5th day, a. m.
No. 9	Mar. 11, '11, 10 a. m.	4 Cc. 5-day	2071 G	6th day, a. m.
No. 10	Mar. 12, '11, 10 a. m.	4 Cc. 4-day	2072 D	7th day, a. m.
No. 11	Mar. 13, '11, 10 a. m.	4 Cc. 3-day	2072 D	8th day, a. m.
No. 12	Mar. 14, '11, 10 a. m.	4 Cc. 2-day	2072 D	9th day, a. m.
No. 13	Mar. 15, '11, 10 a. m.	4 Cc. 5-day	2072 D	10th day, a. m.
No. 14	Mar. 16, '11, 10 a. m.	4 Cc. 4-day	2072 D	11th day, a. m.
No. 15	Mar. 17, '11, 10 a. m.	4 Cc. 3-day	2072 D	12th day, a. m.
No. 16	Mar. 18, '11, 10 a. m.	4 Cc. 3-day	2072 D	13th day, a. m.
No. 17	Mar. 19, '11, 10 a. m.	4 Cc. 2-day	2072 D	14th day, a. m.
No. 18	Mar. 20, '11, 10 a. m.	4 Cc. 4-day	2072 E	15th day, a. m.
No. 19	Mar. 21, '11, 10 a. m.	4 Cc. 3-day	2072 E	16th day, a. m.
No. 20	Mar. 22, '11, 10 a. m.	4 Cc. 3-day	2072 E	17th day, a. m.
No. 21	Mar. 23, '11, 10 a. m.	4 Cc. 2-day	2072 E	18th day, a. m.

The vaccine was given subcutaneously. The first dose was injected into the cervical region, and each succeeding dose a little further

*Each dose consisted of one centimeter of cord emulsified in 5 Cc. of sterile physiologic salt solution. This is double the quantity used in treating the human.

posteriorly, the last dose being injected in the region of the flank. The scheme of treatment for dogs was the same as for horses and mules, except that the doses given were only half as large.

Dr. Nisbet also supplied data on nineteen other cases as follows:

Nine dogs, eight horses, one mule and one cow, which were treated with antirabic vaccine supplied by H. M. Alexander & Co. Three of the nineteen cases died of rabies; one dog died on the thirteenth day, one horse was destroyed after the treatment was completed because symptoms of rabies became evident, and the cow developed rabies one day after the treatment was completed. The dosage for the before-mentioned nineteen cases was the same as was given by Dr. Nisbet, but twenty-four doses were given instead of twenty-one. Judging from the fact that the fatal cases developed rabies after the treatment was completed, or near the end of the treatment, it seems advisable to use a more intensive treatment, i. e., the doses given should be of a less attenuated cord.

Hog-cholera vaccine, of which two forms have been prepared. The Bruschettini vaccine, an Italian product, has been used rather extensively in the Middle West, but its value as an immunizing agent is questionable; in fact, the Bureau of Animal Industry reported that it was practically of no value. King's hog-cholera vaccine has never been placed on the market, but it has been used experimentally; although the results were not uniformly positive, it may, after further investigation, prove to be efficient, in which case it will be a factor in the control of hog cholera. King's hog-cholera vaccine is prepared by a few hours' residence of the virus in the blood of a horse.

Fowl-cholera vaccine, made by the attenuation of the Bacillus avisepticus. This is a preventative agent only. Its use in America has not been sufficiently extensive to warrant any just conclusions in regard to it at this time.

Lactic-Acid Cultures.—The Bacillus acidi lactici is being dispensed in various forms as lactone tablets, fermentyl, etc. It is recommended in digestive disturbances of practically all animals. It is also of some value in controlling suppuration.

Bacterins.—The term bacterin is applied to a preparation containing dead bacteria. Bacterin therapy is of recent development, particularly in veterinary medicine. Bacterins were first used by Sir Alonzo E. Wright of London in the treatment of human tuberculosis. The writer prepared and used some bacterins in suppurative cases in the horse in 1906-7, and in 1908 several doses were prepared and sent to practitioners who later reported on their therapeutic value. Bacterins, generally speaking, are of two types and are designated "Autogenous" and "Stock" bacterins.

Autogenous bacterins are prepared from cultures made from the discharges of the animals to be treated.

Stock bacterins are prepared from pure cultures of the causative micro-organisms.

The bacteria in bacterins are destroyed, preferably by heating to a temperature not to exceed 60° C., for one hour or more. When introduced into an animal body, bacterins cause the production of opsonins. Opsonins stimulate leukocytes in the destruction of bacteria, or they paralyze or stupefy bacteria, thus rendering them subject to leukocytic action.

The American Medical Association appointed a committee to test the therapeutic value of bacterins. This committee's report appeared in the *Journal of the American Medical Association*, January 22, 1910. In substance, they found that strepto- and staphylo-bacterins increased the resistance of white rabbits. This was determined by a rise in the opsonic index. The opsonic index is an indication of the resistance in an animal, but its determination is not essential for successful treatment in ordinary cases.

The diseases and diseased conditions of domestic animals caused by the pyogenic staphylococci, streptococci, pneumococci, and Bacillus coli communis have been successfully combated by the use of bacterins. Some have claimed that they have prepared bacterins for other types of infection, but their findings have not been substantiated.

Bacterins are of value in all suppurative conditions caused by infection with one or more of the before-named microorganisms. It is possible that all of the staphylococci group are derived from one common parent, and probably the bacterin prepared from any one, as the Staphylococcus pyogenes aureus, may be successfully used in combating an infection caused by any other staphylococcus. The streptococcus produces a specific endotoxin, or at least a bacterin produced from a staphylococcus will have little if any beneficial influence upon an animal infected with streptococci. Hence most biologic concerns prepare a polyvalent bacterin, i. e., a combination of streptococci and staphylococci are used in the stock bacterins. The colon bacterin has been employed successfully in many cases of Bacillus coli communis infection, and it is probable that this microorganism should be included in the polyvalent bacterin, because there are many instances of mixed infection in which this microorganism is an active factor. The value of bacterins has been over advertised by some, but they are undoubtedly of considerable value when indicated and properly used, and they are destined to be one of the staple biologic therapeutic agents.

Serums (Sera).—The term serum is employed to designate the liquid portion of the blood (blood serum). It contains some substance or substances that are antagonistic to microorganisms or their products or other chemic substances. A serum contains products of the animal body, such as antitoxins, bactericidal substances, opsonins, agglutinins, precipitins, etc.

Antitoxins are preventative and curative in their action. They are specific, i. e., they cannot be used interchangeably. Antitoxins are prepared by successive injections of increasing quantities of toxin into

the animal body. The horse is most frequently used because of the fact that a greater quantity of blood can be obtained and also because of the greater ease in manipulation. An antitoxin produces its effects by neutralizing a toxin. The dose should be just sufficient to neutralize the toxin already present in the animal body, recent experiments showing that unneutralized antitoxin produces anti-antitoxins which tend to antagonize succeeding doses of antitoxin. The active principle of the serum employed in the prevention and treatment of tetanus is an antitoxin.

Bactericidal substance is in reality a group name and signifies a substance or substances inimical to bacterial welfare—an antiseptic produced by the body and for the protection of the body. Bactericidal substances are produced by successive injections into the animal body of bacteria, either dead, attenuated, or in a virulent state. As usually prepared, either the dead bodies or the vaccine are first injected, this being followed by successive inoculations of the virus of the same microorganism, until the animal body develops a very high resistance to that particular organism. The bactericidal substance is resident in the blood, and produces its action through the destruction and, generally, the disintegration of bacteria, in a way similar, perhaps, to the action of an antiseptic. The value of the antianthrax serum depends upon the bactericidal substance it contains.

Opsonins, as before stated, are stimulants to leukocytes, or they are bacterial depressants, but it is probable there is no serum employed for the benefit gained from the contained opsonins.

The significance of *precipitins* and *agglutinins* in their relation to immunity has not been determined, but they are not thought to be important factors. By further investigation, antibodies may be discovered in addition to the before-mentioned products now recognized in immunizing serums.

The following serums are now employed in veterinary practice:

Tetanus antitoxin, a serum prepared by the repeated injections of tetanus toxin into an otherwise healthy, susceptible horse, until a high degree of resistance has been attained, after which the blood is withdrawn, and the serum preserved and placed in containers. When given subcutaneously, it has been found a very efficient preventative, but its curative value is questionable since the tetanus toxin has a greater affinity for nerve tissue than it has for antitoxin.

Antihog-cholera serum, the preparation of which was devised by Drs. Dorset, McBride and Niles, and which is quite efficient in controlling hog cholera. It is prepared by hyperimmunizing hogs against cholera by the injection or repeated doses of virus. The serum obtained from the hyperimmune hogs is preserved by the addition of a small quantity (usually one-half of one percent) of some antiseptic, as phenol. The dose varies with the potency of the serum, but it is ordinarily 20 Cc. per hundredweight of live hog. The dose should be increased one-

half when the simultaneous method is employed, and when a virulent form of cholera is prevalent in the herd of hogs to be immunized. The serum should be injected deep into the muscular structures to insure a more rapid absorption, and to diminish the possibility of infection at the site of injection, thus avoiding septicemia or abscess formation. It is possible that some other site of injection than the inside of the hind quarter should be selected, as some packers have reported the frequent occurrence of necrotic centers in the hams of hogs which had been immunized intramuscularly.

Antianthrax serum, which has been used by Sclavo and Sobernheim in Russia, and by Mohler and Dawson in the United States. This serum is prepared by hyperimmunizing sheep or horses with anthrax vaccine and, finally, by inoculations with increasing doses of virulent Bacterium anthracis. Mohler and Dawson produced sufficient resistance in sheep by this method to enable them to withstand fifty times the minimum lethal dose. The production of this serum has thus far required rather a long period of time in the hyperimmunizing process, which has made the cost of production rather high. Mohler and Dawson have suggested that the best results would probably be obtained from a homologous serum, i. e., serum produced from sheep should be employed for the immunization of sheep, that from horses for horses, etc. It is claimed by Gruener, however, that the horse produces the most potent serum.

The stimulus for the production of this serum has been the extensive losses in outbreaks of anthrax due to the slow production of a vaccination immunity. The serum produces a passive immunity immediately, and when combined with a vaccine, an active and lasting immunity results. According to a personal statement by Gruener, veterinary inspector of Kamtchatka, Petropavlok, Russia, the antianthrax serum has been giving satisfactory results and is being used extensively in Russia.

Antirinderpest serum, prepared by subcutaneous injection of 1 Cc. of virulent blood and about 50 Cc. of serum from an immune animal. After a rise in temperature and a return to normal, 700 or 800 Cc. of virulent blood is given subcutaneously, and is followed in two weeks by the injection of 3000 Cc. in the same manner. After the immunizing process is completed, the blood is withdrawn and the serum preserved. From 50 Cc. to 100 Cc. are given subcutaneously as a dose. The serum immunization does not produce any reaction, but it is claimed to produce an immediate immunity of short duration. From reports, it appears the serum method is being abandoned in the Philippines and quarantine measures being substituted for the control of this disease.

Antivenomous serum, made by hyperimmunizing an animal by successive injections of venom. The active principle of this serum is an antitoxin. It has proven very efficient in the immunization of the human, but has not been used to any extent in veterinary practice.

Probably a few other products should have been discussed, but little or no space has been devoted to them because of the absence of

any positive data concerning their preparation and use. Krafft's process of immunizing hogs against cholera and swine plague will certainly supplant all other known methods of prevention and treatment of these two diseases, if the testimonials sent out in the producer's literature are genuine. Of the various products mentioned by the various investigators, as Ligniere, Physalix, Piakowski, for the protective inoculation against canine distemper, none have given uniformly satisfactory results in practice.

There is now on the market a product called *influenza antitoxin*. It is the blood serum obtained from a horse which possesses an immunity to that form of influenza known as acclimation fever or shipping fever. The clinical reports of the value of this antitoxin are difficult to interpret. Thus far no one has identified any antibody in the serum and some authorities doubt the presence of any immunizing substance in the product.

Antistreptococcic serum and *streptococcic antitoxin* are advertised by some biologic manufacturers. The streptococci do not produce a true bacterial toxin, and if the substances advertised have any therapeutic value, it is not of an antitoxic nature. *Antistrangles serum*, according to the descriptive pamphlets, is a polyvalent serum prepared in the horse by the repeated injections of the several varieties of streptococci. The therapeutic value of this product is doubtful.

Diagnostic Agents.—The following biologic products are of importance in the diagnosis of disease:

Tuberculin, of which many different kinds are on the market, and most of which are used in diagnosis, some therapeutically.

Tuberculin Original (Koch) was first made and used by Koch, who was at the time of the opinion that tuberculin was a curative agent. The active substance of tuberculin is probably an albuminous derivative and is insoluble in absolute alcohol. The tuberculin is prepared by growing the Bacterium tuberculosis in a glycerinated bouillon four to six weeks, or until the surface bacillary mass becomes a firm, coarsely granular, wrinkled pellicle, and deposits on the bottom of container. This is steamed for three hours, filtered, and condensed, by evaporation in an open vessel, to one-tenth of the original volume.

Bouillon Filtrate (B. F.), the unheated filtrate from a bouillon culture of the bacterium of tuberculosis of known virulence.

Bacillus Emulsion (B. E.), prepared by suspending the entire substance of the Bacterium tuberculosis in a twenty-percent solution of glycerine. This is employed as a therapeutic agent and is very similar to a bacterin.

Tuberculin Precipitatum (T. B.), a refined or purified tuberculin prepared by the precipitation of the active principle of tuberculin alcohol. This is the tuberculin which is usually employed in the ophthalmic test.

Tuberculin R. (Koch), an extract of ground living Bacterium tuberculosis which contains the soluble products of the organisms.

The technic of execution and the reaction observed in the tuberculin test is common knowledge. The tuberculin reaction is an indication of hypersensitiveness and is analogous to other anaphylactic reactions. Tuberculin has proven a very reliable diagnostic agent, particularly in the diagnosis of tuberculosis of cattle, but it is equally efficient in the diagnosis of porcine and, probably, of avian tuberculosis. The subcutaneous tuberculin test is more reliable than the ophthalmic or dermal tests.

Mallein, a product analogous to tuberculin. It is prepared by growing the Bacterium mallei in a glycerinated bouillon from four to eight weeks, after which the bacteria are killed by heat. The culture is then filtered through a porcelain filter to remove the dead and disintegrated bacteria, after which it is evaporated in an open dish to one-tenth its original volume. The test is conducted in the same manner as the tuberculin test and the reaction is similar; however, the mallein reaction consists of thermic disturbances, local manifestations and general systemic disturbances other than rise of temperature. Mallein is a valuable diagnostic agent in the hands of one capable of interpreting the results.

Agglutinogen, a substance which, when introduced into the animal body, causes the production of an antibody designated agglutinin. Agglutinogens of diagnostic value are an integral part or product of bacteria, and agglutinins are chemic substances produced by the animal tissues and found in the blood plasma. This test was first employed in the diagnosis of typhoid fever. The agglutinogen for the glanders test is prepared by killing and suspending the Bacterium mallei in a physiologic salt solution, and this is called the test fluid. The microscopic test is executed by adding blood serum from the suspected horse to the test fluid, in quantities of one part of serum to 500 parts of fluid; one to 800; and one to 1200 respectively. A reaction consists in a deposition of dead bacteria in the bottom of the tube within 72 hours. The technic of the microscopic test for glanders is the same as that of the Widal test for typhoid fever, the dilution being one to fifty, and the reaction consisting of a clumping of the bacteria within thirty minutes. The agglutination reaction depends upon the fact that the agglutinin renders the bacterial bodies adhesive, causing them to adhere to one another; or, it depends upon the production of a fibrin formation similar to that in blood coagulation. excepting that it is less dense. The agglutination test has been found to be very reliable, provided the test fluid is properly prepared and is fresh.

Mallease, a preparation containing digested Bacterium mallei. This was first used as a diagnostic agent for glanders by Konew. It is prepared by digesting the Bacterium mallei, of a young culture, with antiformin, then neutralizing with five percent sulphuric acid. The

active principle of mallease is precipitogen, which is a product or integral part of the body of the Bacterium mallei, and, when liberated in the animal body, causes the production of precipitin. The precipitin reaction is executed by introducing mallease and serum from a suspected animal into a small tube in such a way that the two fluids do not mix, the mallease remaining above the serum. The reaction is the result of the combination of the precipitogen and the precipitin which forms a precipitate. The precipitate generally forms, in a few minutes, at the junction of the two fluids, as a white or cloudy ring, which finally appears as a disc completely separating the two fluids. The test, although it has not been used extensively, has given rather uniform results.

Several other biologic products are being employed in the diagnosis of disease. The *complement fixation*, or complement deviation test is now claimed to be the most accurate test for glanders. To make this test the following biologic products are used: (a) antigen, which is the Bacterium mallei thoroughly macerated, or mallein, (b) amboceptor, which is the blood serum from a rabbit immunized to the red blood corpuscles of a sheep, (c) complement, which is the normal serum of a guinea pig, (d) washed red blood corpuscles of a sheep.

Briefly, the technic of the test is as follows: The inactivated serum (serum which has been heated to 56° C. for one hour) from the suspected animal and the antigen are mixed, the complement added and the whole incubated at 37° C. for one hour. To this the red blood cells of a sheep and the amboceptor are added, and the mixture again incubated for two hours. If the serum is from a glandered horse, the complement is used up in the combination of the serum and the antigen, which prevents hemolysis of the sheep's red blood corpuscles. If the serum be from a horse free from glanders, the complement combines the sheep's red blood corpuscles with the amboceptor and hemolysis follows. This test, according to Mohler, is very reliable.

Need for Supervision of Manufacture.—From the foregoing discussion it is clearly evident that a number of biologic products are now available to the veterinary practitioner, but, unfortunately, some of them are not what they are represented to be. Veterinarians should have some assurance that the label correctly indicates the contents of the labeled parcel. In other words, it is unjust for a biologic manufacturing concern to represent low potency diphtheria antitoxin as antistreptococcic serum and sell it as such to the veterinarian. The variation in the potency of biologic therapeutic agents has been a serious obstacle in the control of infective diseases, and to the development of this branch of therapeutics. The incorrect labeling or the variation in potency is illustrated in Bulletin 121, B. A. I., in which it is shown that the potency of veterinary tetanus antitoxin produced by different biologic concerns varied considerably. In one instance the number of units represented on the label was over one thousand times greater than the contents of the vial by test.

An official supervision by the U. S. Department of Agriculture of all veterinary biologic concerns and their products should be inaugurated, and some system of testing the potency of these products devised in order to protect the veterinarian, the live stock owner and the manufacturer. A scrupulous manufacturer, at the present time, must compete with concerns whose products are of doubtful value and made primarily to sell. Unfortunately some veterinarians apparently prefer to obtain the cheapest product, without a thought of its potency, and, in many instances, where the desired results are not obtained, they condemn the product of all concerns.

Some states have been so overrun with biologic products from questionable sources that laws have been passed, providing for the licensing of reputable and the stopping of unreliable concerns. Kansas now has a law requiring the inspection of laboratories which produce antihog-cholera serum and a test of the serum, and if the products of a laboratory do not meet with certain requirements, they are condemned and their sale and use are forbidden. This is a good law and other states would do well to enact similar ones.

Veterinary Education*

By GEORGE F. BUTLER, A. M., M. D., Chicago, Illinois

The primary significance of veterinary is found in the Latin etymology of the word "veterinarius," being a beast of burden, old, experienced. Owing to the prevailing superstition of the age, the causes of animal diseases were greatly misunderstood during the infancy of the science; yet by the application of empirical therapeutics certain investigators acquired considerable reputation. It is well established that veterinarians accompanied the Roman armies, and that the ever skilful Arabs during the Middle Ages made some advancement in the direction of more definite discovery. But from about 500 to 1500 A. D., the most practical results of the acquisition remained in abeyance. We know that the ancients, especially Homer and Xenophon, wrote of horses and their management; and the Georgics of Virgil show a close observation of domestic animals and their ailments. Indeed, Hippocrates, the father of medicine, is credited with a treatise on the veterinary art. Its true founder, however, appears to have been Vegetivs, who wrote about 300 A. D. His work became the oracle of succeeding ages, and even today will reward a sympathetic perusal.

In America the science has developed, as one would expect, in accordance with our characteristic zeal and energy. The American Veterinary College, founded in New York in 1875, has given marked

*An address at the commencement exercises of the McKillip Veterinary College, Chicago, Ill.

impetus to collective and individual investigation, while several of our universities have created faculties of veterinary medicine.

Yet we must revert to a remote epoch to find the original establishment of veterinary practice and the initial effort to elevate the art into an accepted science. From well authenticated sources it seems that to France is due the honor of having established the first veterinary college in 1761, at Lyons, the institution being under royal patronage.

It is superfluous to add that the American Veterinary Medical Association wields an important influence in the development of the science, since graduation from an approved veterinary school is a prerequisite to membership. In more recent years great advance has been made over the old practice, resulting in a more rational system of treatment on a human basis. It is quite within bounds to say that veterinary compares now with human medicine. The etiology, pathology, and treatment of various animal plagues have been carefully and satisfactorily developed. Blackleg, for instance, and Texas fever are controlled as easily as smallpox and diphtheria in man, perhaps even more efficiently, and the votaries of veterinary science have before them a tempting field of research.

The history of Pasteur's investigations should be an incentive to every veterinarian to do original work. Pasteur's success with anthrax, chicken-cholera and hydrophobia stimulated exploration in other fields. Diseases whose history is but a melancholy record of suffering and mortality have, since Pasteur's work, been subjected to the closest scientific scrutiny.

The discoveries of the past half century have revealed a demand for medical and veterinary science never dreamed before. The keenest intellects throughout the world have summoned all their industry and acumen in exploring new fields of experimental study, from which they have garnered a rare and fruitful harvest. To you is bequeathed the priceless heritage of their toil, and following in their footsteps it becomes not only your glorious privilege, but your solemn duty to be true to yourselves and reverence your science as they have done. You are destined for a while to tread the dubious way, shrouded by valley mists not yet dispelled by the sunlight of knowledge; but if you be faithful to your trust, you will discover you are gradually emerging from the gloom. The unclouded heights lie before you, beckoning you to attain their rose-hued summits, and though in the ascent your horizon will widen more and more, and your toil seem like that of Sisyphus, the scope, intellectual breadth of your achievement will be ample reward for patient zeal. Dispossess your minds of the idea that with your present attainments, your studious labors have ceased. Let me assure you, that you have only begun. You have but crossed the threshold of professional learning and can never, even with your limitations, exhaust the capabilities developed by constant application and a vigilant devotion to the acquisition of newer, deeper knowledge. "As is labor, so

is the reward," says the German proverb; and the great French essayist has declared that "genius itself is only great patience."

You have entered a noble profession, next perhaps in its humane field to that of medicine. "Never mount thy horse without a prayer," says the wise Arabian proverb, "he may bear thee triumphantly on thy journey; he may bring thee to speedy destruction."

We may safely aver that a vital test of manhood with nations, as with individuals, is the consideration bestowed upon animals. We, all of us, have seen daily the most inhuman treatment of poor dumb creatures, for whom redress is powerless, and whose mute suffering appears to be beyond cognizance or jurisdiction of those societies in whose hands the fate of suffering animals largely reposes. It were not difficult to trace to certain nationalities the revolting spectacle of this human degradation. There are passions which annually infest our shores, hopelessly cruel in their origin and exercise. The only treatment to which they are even imperfectly amenable is the vigorous application of the law, a fitting rebuke being the establishment of the ancient whipping post. I am aware that this sounds savage in a civilized land; yet moral suasion in this case is too preposterous to entertain. If men make brutes of themselves, why should we not make brutes of them, so far as the protection of their innocent victims demands reparation?

In conclusion, I think your profession, gentlemen, should go hand in hand with the noblest human aspiration and achievement. Its exercise, even as an arduous profession, is attended by an uplifting sense of benefit to fellow-creatures whose dumb appeal renders more obligatory the culture of sensibilities without which man must speedily lapse into barbarism. "Man," said Pascal, "is but a reed; a breath of vapor; an untoward current of air destroys him. But he is a reed that thinks." Not only should he think, but he should think and act right. The world never needed men who are honest, industrious, enthusiastic, courageous and noble more than it needs them today.

But I have lingered longer than I intended upon my subject. A long—yes, veteran life to you, gentlemen. All joy and success be with you.

It's What You Collect That Counts

How often we hear it said, "So and so has a five-thousand-dollar practice"? So and so may have a five-thousand-dollar practice, but if he collects only 40 percent of it he is actually down to a two-thousand-dollar practice.

It's not what you earn but what you collect that counts.

We hear it said so often that a doctor is the last to be paid that we believe it and govern ourselves accordingly.

But as a matter of fact a doctor collects as much or as little, as fast or as slow, as he himself determines.

It is a positive fact that a physician's bill can be collected quickly with very little loss and retain a larger percentage of clients if it is handled properly, and it is the purpose of this article to point the way which experience has taught to be not only practical but easy.

In the first place the mistake is made of allowing accounts to run. A doctor is entitled to his pay when a patient is discharged or monthly payments from permanent clients.

The question is how to get it. To do this let us divide our patients into three classes.

Class One. Well-to-do, pay certain.

Class Two. Moderate circumstances, honest, good, but slow pay.

Class Three. Poor pay, collection doubtful.

Class one of course needs little attention, a neat statement mailed the first of each month, or quarterly if service is constant, will usually bring a check, but if not, a courteous note that a check would be appreciated, will bring it.

Class Two. This is the largest class. Good honest people but poor managers and slow pay. If they have a few dollars most of them are just as likely to spend it for something they don't need or don't want as to pay their bills. It's this class of patients that need the most attention because if you let them work up a large bill it is going to be dreadfully hard for them to pay it and you are liable to lose them, certainly more liable to lose them if you let them run up an account than if you keep their credit down.

In the majority of cases a statement such as you send to class one is a waste of postage. You can make no fixed and fast rule for collecting claims against this class but must treat them individually. The majority however must be dunned in person and a book containing their accounts should always be in the pocket so that they can be asked for money on every favorable occasion. Men who work for wages should be approached on pay day, merchants of course at any time, farmers when they have received returns from produce sold. The main thing is to collect before the account gets too large, it's easier paid then and more cheerfully. Many a good patient is lost simply because an account has been allowed to run and gets larger than the client can easily pay.

The third class is the bane of every practice. Cash should be the rule here and if a deadbeat knows it's cash he will provide it somehow and respect the doctor for insisting upon his right.

More or less charity work every doctor is expected to do, but if it is charity work no record of it need be made. However the authorities of nearly every city and town provide for the payment of charity work so that the loss here may be kept down.

In every case where a doctor loses a considerable percentage of his accounts it's his own fault. It shows plainly that he is a poor bookkeeper and a poor collector.

How often it occurs that a client asks a doctor for a statement and the doctor puts him off saying his books are not posted, and what a lot of doctors there are whose books are not posted.

Within a few years a new method of recording accounts has been found that is so simple that no doctor should ever offer the excuse that his accounts are not posted. We refer to the card system. The advantages of a card system are that no index is required since the cards are filed in alphabetical order and there are no balanced accounts among the

Mr John P. Brown

Date 1910	ITEM	DR.	CR.	Bal
Dec 17	8 Calls Dec 10-17 (Bay Mare)	12 50		12 50
"	By Cash		5 00	7 50
Jan 5	Office Medicine (Bay Gelding)	1 50		9 00
" 12	Office " "	1 50		10 50
" 19	" " (Gray Mare)	1 50		12 00
" "	By Cash		5 00	7 00
" 26	Office Medicine (Cow)	1 50		8 50
Feb 3	Call Walton (Pony)	2 50		11 00
" 10	Office Medicine (Poly)	1 50		12 50
" "	By Cash		10 00	2 50
" 17	Office Medicine (Dog)	1 00		3 50
March 1	By Cash		3 50	

Sample of card used in "Card Ledger" reduced in size.

live accounts, all accounts as paid being transferred from the open to the closed file. The card that is usually preferred, is the one with three columns, the first being for debits, the second for credits, and the third always showing the balance due (if the balance should happen to be a credit balance it is shown in red ink) then when an account is asked for it can be given at once without footing the debit and credit columns.

Don't let an account get old, give your accounts the attention they deserve and they won't get old. The minute you put an account in the hands of an attorney or collection agency you've lost a patient and a friend. Never use a collection agency. If you cannot collect an account an agency cannot. In collections as in medicine prevention is better than a cure. Keep your accounts from getting old.

As stated at the beginning of this article, it's what you collect that counts. A physician is in practice primarily for profit; he usually has a wife to support, a family to raise and educate, and should wish to save something besides in order to retire comfortably when his active work is done. He must get a practice first, but it avails him naught if he is careless and does not collect his bills.

In collections you must use every-day common sense, act on each case as you think best in that particular case, but don't let them go, make up your mind how best to act in each case and then act.

—*Physicians Drug News.*

Is the Hare a Ruminant?

Translated by DR. E. M. EPSTEIN, Chicago, Illinois

This question was more than once asked, and the readily given answer in the negative was as readily made an argument against the Mosaic books of the Bible, where it is said: "And the hare, because he cheweth the cud, but divideth not the hoof, he is unclean unto you." (Leviticus 11 :6), also Deuteronomy 14 :7. "Nevertheless these ye shall not eat of them that chew the cud, or of them that divide the cloven hoof; as the camel, and the hare and the coney: for they chew the cud, but divide not the hoof; therefore they are unclean unto you."

A practising physician, Dr. V. A. Wille, a Dane, published a book in 1903 under the title, "Tygger Haren Droev?" which means in German "Ist der Hase ein Wiederkaeuer," and in English: "Is the Hare a Ruminant?" The author calls his book very modestly "a study in natural history," but the ground work of his study comprises, besides the Bible, forty different books, ranging all the way from the time of Aristotle to 1902. The worthy author says it pained him when unbelieving persons, with or without scientific antecedents and acquirements, ridiculed the Bible and therefore he took the trouble—and a great one it was—to study earnestly and from its very beginning the question as to whether the hare was or was not a ruminant.

First of all the author establishes, that the Hebrew word AaRNeBeTh in the two Mosaic books mentioned above, undoubtedly means "Hase" in German, and "hare" in English. The Hebrew word in reality means "the runner" from the verb "RaNaB" equals to run, a word with the same meaning in Arabic, Armenian and Assyrian. The words for "chewing the cud" in the Hebrew is "MaGHaLeH GheRaH, and denotes "bringing up the fine-cut," or comminuted. A curious theme to which the author devotes a whole chapter is: "Man as a Ruminant." The author calls attention to the fact that the best Conversation Lexica of modern times, offer a grateful field to semi-scientific objections, and it is just from pseudoscience that our opponents draw their weapons, which are therefore least dangerous.

The author investigates deeply the works of Aristotle, Gessner, Mercurialis, Waldungus, Aldrovandus, Bartholinus, Peyer, Pallinus, Duverney, Buffon, Schreber, Retzius, Milne-Edward, Colin and Tschudi. Of these fifteen authors, eight are of the opinion that the hare is a ruminant and although they can not demonstrate it, still they say in touching piety, they would rather believe the divine assertion than that of worthy men. Four of the number negated the hare to be a ruminant and the remaining three leave the question undecided.

The French zoologist, Prof. Moneez, wrote a book in 1878 under the title "*Le Lapin est il un animal ruminant?*" and endeavored to answer

the question with a decided "yes!" but his work seems to have been unnoticed. Then the veterinarian Ch. Morot published in 1882 a genuinely classic work *"Des Pelotes stomacales des Leporides"* i. e. "On the balls in the stomach of the Leporides," and the book made a real epoch. Morot could not, at first, decide the question until, at last, he blinded the all-too-modest rabbits. The animals seemed to be too bashful to chew their cud when in the presence of men. But when they were blinded, Morot could observe the surprising spectacle that the leporides took up from their feces the undigested portion of foods, to rechew them.

How did our gifted Danish author fare? Just as usual! At first no one wanted to believe him, and then it was said: "Well, this is an old story and we knew it long ago." Therefore does Dr. Wille say, very properly, that the honor to have solved the question, about the ruminancy of the hare, belongs unreservedly to Prof. Morot, next to God, who is claimed to be the author of the Bible.—H. SELLDEN, in the *Monthly Glauben und Wissen*, for 1904, pp. 338-9.

[The above article called to my memory, an interesting saying, by the ancient Rabbis by which they thought to prove that the "Law was from heaven," or as we would phrase it, "divinely inspired." Commenting on the verse in Deuteronomy 14 : 7, "Nevertheless these ye shall not eat of them, etc., etc.," the celebrated Rabbi Akiba asks: "And was Moses a hunter (kunegos) or a stone-slinger (ballista)?" i. e., that he should know the names and habits of wild animals. And then he concludes by saying: "From this there is an answer to those who say that the Law is not from Heaven." (Siphri to Deuteronomy, 102.) The argument is ingenious and may be supported by the allowable presumption that Moses must have been instructed (Greek: epaideuthee) in zoology also, when he was "in all the wisdom of the Egyptians" (Acts 7 : 22). While the ancients did not know all that we know they certainly knew many things that we do not yet know, as, for instance, witness this ruminance of the hare.—TRANSLATOR.]

Autos and Illinois Mud

I have read with a great deal of interest the article by Drs. A. V. Ellis and J. D. Durack and I must say I fully agree with Dr. Durack in all he says, only he did not say half enough.

Having been at my present location only a year and six months, my practice is not enough to allow me to invest in a car, although I use one and think it fine. It has allowed me to extend my practice to such an extent that next year I will be forced to get one. But here the shoe pinches.

About three or possibly more months in the year a machine in this part of dear old Illinois it is as valuable as a boat without a bottom—in fact it is in the way unless you have a garage handy which many little towns have not.

Furthermore at about the time I should want the car to make my longest, fastest and heaviest route I must leave it lay idle and resort to four horses to do my work.

Also, in that short period I find I do about 75 percent of my business for the entire year, and I have yet to find the roads or the weather good and business in the same proportion. And yet there are times, as for instance during the extremely hot weather of the past summer, when a ten-mile drive in a hurry puts horses clear out of commission, while on the other hand a car is ready to turn around and do the trip back and lots of others, day in and day out.

My experience, like Dr. Durack's, has been mostly with the Overland, and I can't say too much for that make, but have found that when I want it the most I can use it least.

H. H. HARZ, M. D. C.
Law Point, Ill.

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[Since you *must* use a horse-drawn vehicle for 75 percent of your work and during the worst weather, why not get a "cozy cab" and do this work under the most favorable conditions; then when it is necessary to make a long drive in hot weather hire an auto. Many veterinarians think when they can hire an auto for 16 to 25 cents a mile (each way) that it is less expensive to hire than own one even where the machine is used for the major part of the work.—ED.]

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The British Tuberculosis Commission

The fourth and final report of the Royal Commission, appointed in 1901 to inquire into the relationship of human and animal tuberculosis, has recently been published.

The appointment of this Commission grew out of the stand taken by Koch at the meeting of the International Tuberculosis Congress in London in 1901, in which he laid great emphasis on bad housing, poverty and ignorance in the causation of human tuberculosis, and minimized the importance of bovine tuberculosis as a source of tuberculosis in man.

The Royal Commission is by no means the only body which has painstakingly investigated this subject, but it has likewise claimed the attention of medical commissions and pathologists all the world over. The investigations of this Committee have been conducted over a greater period of time, and its report, while essentially agreeing with the conclusions of the others, is perhaps entitled to greater weight than any of the other reports, all of which uniformly controvert Koch's dictum.

That incalculable harm was done in this country to the cause of those engaged in efforts for the control of tuberculosis, by the declaration of Koch, can scarcely be denied. This harm has resulted not so much from Koch's position in the matter as from the grossly exaggerated and

falsified accounts of it that have been widely circulated by a very considerable portion of the daily press of the United States during the past ten years, and even by the high-class American agricultural papers.

Commenting editorially on this final report of the Royal Commission the *Veterinary News* says: "All over the world the answers [to the inquiry as to the relationship of human and animal tuberculosis] have been substantially the same. Bovine tuberculosis is a source of danger accountable for fatal tuberculosis in many children, and that danger lies chiefly in infected milk. Any further delay in dealing with the question of the milk supply can only be called a national disgrace."

In this country the question of the intertransmissibility of human and bovine tuberculosis has received fully as much attention as it has in any other, and the general public is perhaps better informed on the subject than in any other country. Unfortunately, regulation of the milk supply here must rest with the several states, many of which, owing to the cupidity of a few hundred-thousand dairymen, will doubtless continue to add to the disgrace which has already attended the dilatory and ineffectual attempts made at sanitary regulation of this food supply. And of this disgrace, Illinois legislators, it is safe to predict, will continue to claim the lion's share.

This final report of the Royal Commission on Tuberculosis is largely a confirmation and summarization of the three interim reports, with the substance of which our readers are already familiar.

Regarding the elimination of tubercle bacilli in the milk of infected cows, a question on which there has recently been some divergence of opinion in this country, this report says:

> A large dose (100 mg.) of bovine culture was injected subcutaneously into a healthy milch cow (Cow 300), with the result that her milk caused tuberculosis in guinea-pigs by the end of the first week and on every subsequent occasion. This cow died in thirty days of general tuberculosis, but her udder was normal both to the naked eye and on microscopical examination. In two other experiments on cows with the human tubercle bacillus it was shown not only that these tubercle bacilli, when subcutaneously inoculated, were excreted in the cow's milk, but that in some cases the excretion of them lasted for a considerable time, and in addition there was evidence of some multiplication of tubercle bacilli in the milk sinuses. In one cow (Cow 77) which received 100 mg. of culture of the human tubercle bacillus subcutaneously, tubercle bacilli were present in her milk twenty-four hours later, and the milk, in small doses, also caused tuberculosis in guinea-pigs 155 days later, as well as at intermediate periods, the udder being found normal when the cow was eventually killed. Of one cow (Cow 565), which received 10 mg. of similar culture intravenously, the milk was found to contain these tubercle bacilli twenty-four hours after inoculation and up to fourteen days, but not subsequently. This cow was killed in 182 days and showed no tuberculous lesions. Similar experiments performed on milch goats (six in number), with both bovine and human tubercle bacilli, were confirmatory of the results obtained in cows. It would appear, therefore, from the results of these experiments that the inoculation of large doses, whether of bovine or of human tubercle bacilli, may result in the excretion of tubercle bacilli in the milk of the cow and of the goat without any disease of the udder being produced, and that in the case of the human tubercle bacillus, these bacilli may, when large doses are employed, be present in their milk for a long time after inoculation.

Regarding the identity of the human and bovine types of tubercle bacilli the report says:

It is impossible to regard difference of virulence for the calf and rabbit as sufficient to establish the non-identity of the human and the bovine types.

There would therefore remain only slight cultural differences on which to found the conclusion that the human and the bovine types represent two distinct organisms. We prefer to regard these two types as varieties of the same bacillus, and the lesions which they produce, whether in man or in other mammals, as manifestations of the same disease.

But while we regard the point which we have just considered as one concerning which there is room for difference of opinion, there is an aspect in which tuberculosis in man and in cattle must unquestionably be pronounced one and the same disease. Whether one prefers to regard bovine tuberculosis and the cases of tuberculosis in man which are caused by the human type of bacilli as varieties of the same disease or as independent diseases, there can be no question that human tuberculosis is in part identical with bovine tuberculosis. Our researches have proved that in a considerable proportion of cases of the human disease the lesions contain, and are caused by, bacilli which are in every respect indistinguishable from the bacilli which are the cause of tuberculosis in cattle. In all such cases the disease therefore is the same disease as bovine tuberculosis.

As to the intertransmissibility of tuberculosis from animals to man and *vice versa* the commissioners say:

We must conclude that mammals and man can be reciprocally infected with the disease (tuberculosis). The possible danger to man through reciprocity in this sense was, of course, the more important question presented to us, and as we have conclusively shown that many cases of fatal tuberculosis in the human subject have been produced by the bacillus known to cause the disease in cattle, the possibility of such infection cannot be denied.

And the importance of this conclusion is not diminished by the fact that the majority of such cases examined by us occurred in young children, or by the merely local results following the administration of the human type of bacillus to bovine animals. Bovine animals are not completely immune to the human tubercle bacillus, and adult human beings can be infected with the bovine type, even the pulmonary form of the disease in man being sometimes caused by the bovine tubercle bacillus.

Perhaps the question of greatest importance is that as to the conditions under which the transmission of tuberculosis from animals to man takes place. Here again the answer is direct and unequivocal. The commissioners say:

Whatever may be the animal source of tuberculosis in adolescents and in adult man, there can be no doubt that a considerable proportion of the tuberculosis affecting children is of bovine origin, more particularly that which affects primarily the abdominal organs and the cervical glands. And further, there can be no doubt that primary abdominal tuberculosis as well as tuberculosis of the cervical glands is commonly due to ingestion of tuberculous infective material.

The evidence which we have accumulated goes to demonstrate that a considerable amount of the tuberculosis of childhood is to be ascribed to infection with bacilli of the bovine type transmitted to children in meals consisting largely of the milk of the cow.

The report concludes with the following recommendations:

Meanwhile we, in view of the evidence adduced by us, regard ourselves as called upon to pronounce on administrative measures required in the present for obtaining security against transmission of bovine tubercle bacilli by means of food. In the interests therefore of infants and children, the members of the population whom we have proved to be especially endangered, and for the reasonable safeguarding of the public health generally, we would urge that existing regulations and supervision of milk production and meat preparation be not relaxed; that on the contrary Government should cause to be enforced throughout the kingdom food regulations planned to afford better security against the infection of human beings through the medium of articles of diet derived from tuberculous animals.

More particularly we would urge action in this sense in order to avert or minimize the present danger arising from the consumption of infected milk. And in this con-

nection it may be convenient for us to repeat certain facts observed by us in reference to the conditions tending to the elimination by the cow of bovine tubercle bacilli in her milk; facts in our opinion of such importance that they formed the subject of our Third Interim Report.

Bovine tubercle bacilli are apt to be abundantly present in milk as sold to the public when there is tuberculous disease of the udder of the cow from which it was obtained. This fact is, we believe, generally recognized, though not adequately guarded against. But these bacilli may also be present in the milk of tuberculous cows presenting no evidence whatever of disease of the udder, even when examined post mortem. *Further, the milk of tuberculous cows not containing bacilli as it leaves the udder may, and frequently does, become infective by being contaminated with the feces or uterine discharges of such diseased animal. We are convinced that measures for securing the prevention of ingestion of living bovine tubercle bacilli with milk would greatly reduce the number of cases of abdominal and cervical gland tuberculosis in children, and that such measures should include the exclusion from the food supply of the milk of the recognizably tuberculous cow, irrespective of the site of the disease, whether in the udder or in the internal organs.*

It may be well to add here that Koch's slightly modified position, as announced at the International Tuberculosis Congress at Washington, D. C., in 1908 was:

1. The tubercle bacilli of bovine tuberculosis are different from those of human tuberculosis.

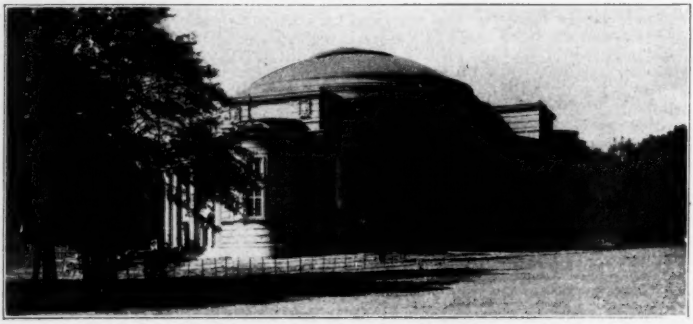
2. Human beings may be infected by bovine tubercle bacilli, but serious disease from this cause occurs very rarely.

3. Preventive measures against tuberculosis should therefore be directed primarily against the propagation of the human tubercle bacilli.

The laborious investigation of this Commission and hundreds of other pathologists has since controverted No. 2 beyond a possible doubt.

The Forty-eighth Annual Meeting of the A. V. M. A.

The Toronto meeting of the American Veterinary Medical Association, held August 22–25, 1911, was a record meeting in a number of respects. Never before have so many veterinarians attended a meeting



Convocation Hall

of this Association or have so many of the women folk attended any previous meeting. At no preceding meeting has the literary program furnished such a wealth of high-class articles on such a variety of subjects pertaining to the broad field of veterinary science. At no other single meeting of this Association has so much been accomplished in raising the standard of veterinary education in this country. Never before has a meeting been held under more favorable conditions with regard to time, location and weather. The hotel accommodations of Toronto are excellent, and for convenience and adaptability Convocation Hall, as a place of meeting, is not equaled by any building in which meetings of this Association have heretofore been held. These and other

Interior Convocation Hall

favorable factors combined to make the forty-eighth annual meeting of this Association most enjoyable and profitable for those attending.

For three years Dr. Geo. H. Glover, the retiring president, has labored incessantly to raise the entrance requirements for American veterinary colleges, to lengthen the course of instruction in those colleges and for the granting of a uniform degree by all American colleges. The faculties of many of the private schools have also earnestly worked for this advancement. In a measure all three of these progressive steps were taken at this meeting and they constitute the most notable accomplishment of the Association during the year. The action taken was, to require that after 1915–16, veterinary colleges whose graduates

shall be eligible to membership in the A. V. M. A. must maintain entrance requirements equivalent to one year of high school work, and after 1918–19 entrance requirements equivalent to two years of high school work successfully completed. With respect to the length of the course of instruction it is provided that after 1914–15 veterinary colleges whose graduates are eligible to membership in this Association shall maintain a course of not less than twenty-four months during a period of not less than three years. The representatives of the private colleges fought hard to make this requirement read "during a period of not less than *four* years," and the bitter opposition of one of the state colleges to this was the greatest surprise of the meeting. Though radical changes in the requirements for the faculties of veterinary colleges was discussed, no important changes were made.

A resolution was passed recommending to all veterinary colleges that the degree of Doctor of Veterinary Medicine (D. V. M.) be conferred upon graduates. It is understood that this recommendation will be complied with by all the schools.

Undoubtedly all the private veterinary colleges aspiring to a place in the "Acredited List" will within the prescribed time lengthen their courses to twenty-four months; whether this will be accomplished in three years of eight months each or during four years of six months each remains to be decided. If the latter, which at this time appears the more likely, course is taken by the private colleges, it is understood that the veterinary course given in the Colorado Agricultural College will be at once lengthened to four years of nine months each. Since the Iowa State College, the Kansas State Agricultural College and the Washington State Agricultural College already maintain veterinary courses of this length (36 months) it will leave but three large (State) schools giving courses of only three years, and in all of these (New York, Pennsylvania and Ohio) the entrance requirements are four years of high school, work successfully completed or its equivalent, and the length of the school year nine months.

Owing to the great length of the program; owing to the short sessions and long recesses, and owing to the many business sessions and the unnecessary length to which some of the business sessions were prolonged, many of the papers listed on the program were not read in full and of those read almost none received anything like the discussion they should have been given. This was a disappointment to many who attended the association largely because of the excellence of the program that was promised. The decision to pay the Chairman of the Publication Committee $250 a year for his services will probably compensate for some of the omissions in the program, since we may now reasonably expect the publication of the official proceedings of the meeting within sixty days, whereas heretofore the official report of the meeting has not been distributed until about seven months after the meetings.

Among the important resolutions passed by the Association was one instructing the President to appoint a committee of anatomists to formulate or recommend a system of nomenclature for comparative anatomy, and requesting examining boards in the various States to give, as far as possible, all synonyms for anatomical terms until this committee reports.

Another resolution provided for the appointment of a committee of three to ascertain if the instruction in veterinary colleges is maintained up to the standard required by this Association for the eligible list, and appropriating $500 to pay the expenses of this investigation.

Another resolution provided for the appropriation of $100 for the erection of a monument to Prof. Arloing.

A fourth resolution instructed the Secretary to install a card-index system of bookkeeping, that the records of the Secretary's office may be rendered intelligible to others than expert accountants.

Still another resolution provided for five- instead of four-day meetings in the future.

The balloting for the election of officers resulted in the election of:

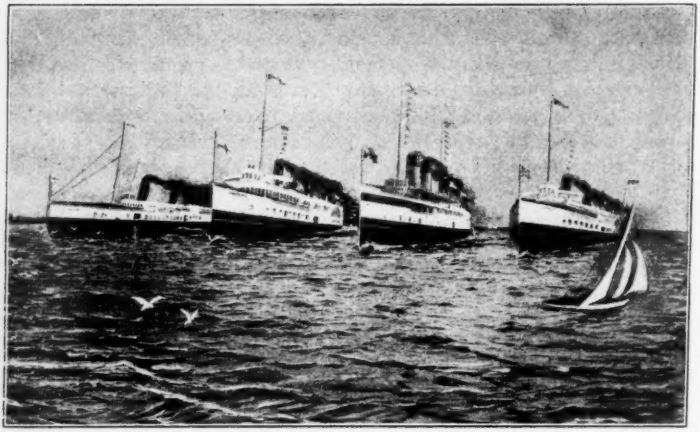
Dr. S. Brenton, Detroit, Michigan, President. Dr. Brenton has been an active member of the Association for more than twenty years and a tireless worker for its interest. He is esteemed by all and the bestowal of this honor upon him is peculiarly fitting.

The election of vice-presidents of the Association is of increasing importance, not only because the method recently adopted of dividing the meetings into sections, causes a number of the vice-presidents to be called upon to preside at sessions of the Associations, but also because of the influence which the vice-presidents have in the Executive Committee, where a large portion of the business of the Association is really done and where its policies are to a great extent outlined. The Association was fortunate in the selection of the following vice-presidents:

First, V. A. Moore, New York; second, L. Van Es, South Dakota; third, H. Jensen, Missouri; fourth, J. P. Turner, Washington, D. C.; and fifth, J. H. Roberts, Indiana.

The re-election of Dr. C. J. Marshall of Pennsylvania, Secretary, was unfortunate. During the past year Dr. Marshall has not been at all times attentive to the duties of secretary. An able secretary who will conscientiously perform the full duties of his office is so essential to the welfare of the A. V. M. A., that it is regrettable if its progress is to be limited during the coming year by any short comings in this office. Dr. Marshall publicly acknowledged a lack of attention to the duties of the office of secretary during the past year and in a way promised a better administration in the future. We earnestly hope that he will more than fulfill his promise.

For treasurer, Dr. George R. White of Tennessee was re-elected for the tenth time, and for librarian Dr. Williams of New York received a similar endorsement.



Fleet of steamers, Niagara Navigation Company, connecting Toronto, Niagra Falls and Buffalo

The social features of the meeting were given rather less attention than at former meetings, and some of the visiting ladies were disappointed at this and complained that Toronto people are poor entertainers. The automobile ride tendered them was pleasant and the moonlight boat-ride delightful, except that the local committee neglected to provide the moon and of course the *moonlight* was missing. The teas, and receptions, and other "jolly times" which have been accorded the ladies heretofore were sorely missed by some of them.

Why a Nominating Committee

The ex-presidents of the American Veterinary Medical Association constitute what is known as a "Nominating Committee," whose duty it is to place in nomination one or more persons for each of the offices of the Association. At first thought this may seem a very harmless way in which to employ those who have been honored by the highest office within the gift of the Association, since no one is compelled to vote for those nominated by this Committee, and nominations from the floor are also permitted, but in practice it does not work out so. In every body of men, and the A. V. M. A. is no exception, there is a considerable percentage of the voters who give little or no thought to selecting their officers but who merely follow the lead of someone else. This class of voters in the A. V. M. A. is numerous enough to hold the balance of power in many elections. Nothing is more natural than that they should support the nominee of the Committee whose name occurs first upon the list and this selection of the Committee is usually chosen.

Nothing could be more fortuitous than this arrangement *if* the first selection of the Nominating Committee was in every instance the best that could be made, but such is not always the case.

It is or should be admitted by all that this Nominating Committee acts with an eye single to the best interests of the Association, as it sees it, but its view is within and not outward, backward and not forward, its star is one, not of hope for the future, but rather of achievement in the past. In the very nature of things each member of this Committee sees the Association at its greatest in the days when he was at its head; he sees those active in Association affairs during his administration as most deserving of honor by their fellows. In consequence the officers are often selected from those whose greatest activity in professional matters is past, and many times from those who are little known to the great profession outside of the membership of the Association. A result: The men who are doing the things that make for the advancement of the whole veterinary profession; the men through whom the profession is known to the public are not always selected as leaders by the Nominating Committee, and for this reason the Association doesn't grow as it otherwise would, or have the weight with the public that it might have. To give a concrete illustration, let us take the election of President at the Toronto meeting. Elsewhere we have said the election of Dr. Brenton to that office is felicitous, and we do not wish to be understood here as in any way qualifying that statement. Dr. L. A. Merillat was the Association's second choice for President—but for the influence of the Nominating Committee he would have undoubtedly been elected. What would this have meant for the Association? Dr. Merillat has had an important part in many of the programs of the A. V. M. A. meetings and none of his work has ever been poorly done. On special invitation he has lectured and performed operations at the meetings of many state veterinary associations; as an author of veterinary textbooks his popularity is equaled by few if any American writers. Through his surgeries he is known to and he has instructed more than ten thousand veterinarians. He is a national figure before the live-stock interests of America. A letter from him as president of the A. V. M. A. sent to all who are eligible to membership would bring to the Association without any other influence 500 applicants for membership. The A. V. M. A. needs five hundred new members, and needs them very much.

Again we do not believe that the executive ability of the candidates is seriously considered by the committee before giving its endorsement.

The Nominating Committee of the A. V. M. A., is undemocratic—even un-American—in theory, is not elective or even appointive and cannot be changed to meet changing conditions. In an indirect way it is almost self-perpetuating. We believe that to do away with it at the next annual meeting of our Association would be for the best interests of the Association.

A Resumé of Biologic Therapy

In this issue we present our readers with an excellent article by Dr. A. T. Kinsley. The progress made in biologic therapy during the past twenty-five years, and even during the last decade, has been truly phenomenal. So much has been learned that is of practical value to the veterinarian, so many new products have been evolved that are useful and have won a more or less permanent place among our valued agents for combating disease in animals, that it is imperative that the practising veterinarian, and others, too, for that matter, be fully informed as to just what has been accomplished. To be anything less is to be behind in the march of progress; to be in a rut which differs from a grave only in its depth. For one to act the ultra-conservative part, give no present attention to these matters but wait till others have tried out the new things and then adopt only that which is good, is to run a serious risk of losing one's connection in matters biologic and to get so hopelessly behind as to be unable to appreciate either the good or the inferior or to differentiate between them.

In Dr. Kinsley's article we have this subject boiled down, as it were, and couched in the fewest words and the simplest language of which the subject admits. This article is the result of a laborious study of a vast amount of material on the subject. Much chaff has been cast aside and only that which is known to be of value discussed.

We are not prepared to go the length that the author does when he says, "It is probable that in the not far distant future each specific infectious disease will be prevented and treated by a specific biologic product of biologic origin," but we must all admit if the future is to be judged by the past, that in products of biologic origin there will yet be discovered many invaluable agents for the treatment and for the prevention of disease, specifics, if you please, whose efficacy is as yet undreamed of; and we must also admit that in no other way, in so short a time and with so little effort, can we secure so complete and accurate an idea of just what has been accomplished as we can by studying this article.

Much of the use of biologic products at the present time is empiric, not to say haphazard. Is it any wonder then at the diversity of opinion concerning their value? The action of a considerable number of biologic products is as well understood by some as is the action of strychnine or the firing iron. Then let each of us not already familiar with every phase of this subject avail ourselves of this opportunity to learn of the products here discussed and thus take the first step in their scientific—their successful use.

For the first time in a decade the A. V. M. A. has a president not engaged in school, state or federal work.

Pointed Opinions on Live Topics

BY READERS OF

Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the thanks of the editor, the approval of the veterinary profession and the lasting gratitude of those who are aided by your suggestions.

A Plea for Accuracy in Nomenclature

The increasing occurrence of error in the use of scientific terms in our literature as well as in our conversation, impels me to contribute the following to the end that we may, as a profession, be stimulated to accuracy in the use of technical terms.

Is there any sense, to say nothing of accuracy, to speak of the inoculation of hogs with anti-hog cholera serum or the injection of a bacterin into the body of an animal, as vaccination? They are not vaccines in any sense nor can they be correctly so termed, yet how common has become the error, a moment's thought will convince you. Our veterinary magazines redound in use of the word vaccinate for the use of these two products and I have seen a blank form sent out by one state institution to be filled in by the veterinarian using the anti-hog cholera serum, in which no other expression was used. Even our government reports, always the epitome of correctness, have contained this misuse of the word.

A vaccine is a virus; consists of the attenuated living germ in a condition capable of giving the disease. The purpose of vaccination is to give the disease, albeit in a mild form.

A bacterin is a killed culture; consists of dead germs and their products; cannot give the disease. In fact, bacterins are used to enable the animal to the better resist the disease already present.

An anti-serum obtained from the blood of an animal, immune to the disease, should contain no germs and like a bacterin, does not give the disease but enables the subject to resist it.

Frequently we read from the pens of men high up in our profession the glaring misuse of this term, vaccination, nay, the correct usage is so rare as to be conspicuous.

Shall we not then, as accurate, scientific men, endeavor to correct this error and thus uphold the proper dignity of our profession.

GEO. F. BABB, D. V. S.

Topeka, Kas.

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[We heartily endorse the sentiments of Dr. Babb in regard to the correct use of technical (and

other) terms. We must plead not guilty to the charge of knowingly, incorrectly using technical terms; indeed, Dr. Babb in his letter accompanying this article mentions that the AMERICAN JOURNAL OF VETERINARY MEDICINE is excepted from his criticism. We make an earnest effort to the end that every article appearing in this magazine shall be free from errors of fact or expression, conform to a certain uniform style, violate none of our long list of "don'ts" and yet tell just what the author intended to say.

Not only do we always avoid the misuse of the word "vaccinate" as described above but in any other paper than this we would not have permitted the use of "inoculation" except as applied to the introduction of a *virus* (or a bud or a graft as applied in horticulture); we should have said the "injection" or "introduction" of a *serum*. And again "antihog-cholera serum" would have been spelled with the hyphen as here used. Instead of "epitome of correctness" we should have made it read "model" or "example" of correctness—ED.]

Regarding Uterine Irritation

In regard to Dr. Peterson's case, page 671, July issue, I have made it a routine practice for many years to irrigate the uterus and never noticed any ill effects in future breeding.

In regard to Dr. J. E. K.'s cases, page 675, July issue, I think the cases he diagnosed as heaves were cases of asthma which are very susceptible to atmospheric changes and also changes in altitude. I have recently come in contact with two such cases in horses shipped to Southern California from mountainous districts of Utah.

J. L. TYLER.

Pomona, Cal.

"Black Tongue" in Mississippi

Since coming to Mississippi I have met with a disease among dogs, known here as "sore mouth," or "black tongue," which has proven to be very fatal to dogs. Why it is called black tongue I have been unable to learn, as there is nothing in the symptoms of the disease that would induce one to call it that. The disease is very prevalent among dogs of Mississippi, Louisiana, Alabama and Georgia and is very fatal if not treated in its incipiency.

Symptoms.—The disease takes on the form of a stomatitis and seems to come on more often just after the dog has had a hard run and become heated. It begins with a loss of appetite, weakness and slobbering. The buccal membrane and gums become inflamed. Throat also becomes inflamed and is sore. There is no papular or vesicular formation, the mucous membrane of gums and cheeks slough off without any ulcerative formation. The tongue does not become affected, or at least I have never seen it affected. The animal is usually more or less constipated. The eyes also become inflamed and discharge a great deal of muco-purulent material.

Treatment.—The treatment that has proven most successful with

me is to first administer a purgative, and cleanse the mouth thoroughly with a solution of copper sulphate and silver nitrate, also paint the nose and lips with solution of silver nitrate. Apply this treatment about every four hours. Place animal in a dark, quiet place and withhold all food and water for at least five or six days. This treatment has proven fairly successful with me where I receive the patient within twenty-four hours after the first symptoms have shown up.

The disease seems to be infectious and yet I have seen dogs drink and eat with dogs affected with sore-mouth and not contract the disease. I can find nothing in textbooks concerning this disease and any information anyone can give me will be highly appreciated.

EDGAR HEINY.

Hattiesburg, Miss.

—

[Black-tongue or sore-mouth in dogs is quite prevalent in most of the southern states from Virginia to Texas. Dr. John R. Mohler, chief of Division of Pathology of the Bureau of Animal Industry, replying to an inquiry concerning this disease, says:

"In the South the term 'black tongue' is generally applied to cases of dumb rabies, but in certain localities the term is also used to designate a malignant form of necrotic stomatitis which is usually accompanied by extensive bacterial intoxication. In several outbreaks of so-called 'black tongue' of the dog exhibiting severe necrotic stomatitis, we have succeeded in incriminating the bacillus necrophorus as the causative agent. The description of the malady as noted in your letter resembles considerably that of 'canine typhus' or 'Stuttgart disease,' but since no definite causative agent or specific lesions have yet been observed, any infectious disease of the dog which is more or less fatal and presents all or most of the various manifestations present in the Stuttgart disease may be considered as simulating that disease. In fact the intestinal form of canine distemper plus stomatitis gives a clinical picture that resembles markedly the manifestation of the Stuttgart disease." —ED.]

Possibly Alfalfa Impaction

I was called to see a case of impaction in a mare which the owner said had not eaten anything for three days and was acting very "dumpy."

I found the mare standing and acting very stupid, with a very weak heart action and no peristaltic motion at all.

Upon making a rectal examination I removed almost a bushel of bloody feces and found a tear six inches long in top of rectum, about a foot forward from the anus.

I gave a very unfavorable prognosis, but at the insistence of the owner instituted treatment. The mare died that night, however, in spite of everything that was done.

Treatment.—I kept the rectum as empty as possible by back raking and gave alcoholic stimulants, linseed oil and strychnine.

What seemed strange to me was how could the mare get in such a condition as to cause the rectum to tear without showing the least signs of pain.

J. ATKINSON WILKINSON, V. M. D.

Oophorectomy of Cats

Will you please give me full directions for spaying cats? Do these animals readily recover from this operation? Does the operation spoil them for household pets?

T. D. D.

—

In the literature on the subject we find the following:

Removal of the ovaries is not frequently practised on the cat, and, as I consider the operation (except when necessitated by disease) inhuman and extremely cruel, I purposely omit describing it in these pages.—J. WOODROFFE HILL, F. R. C. V. S., in *The Diseases of the Cat.*

On the same subject another writer says:

OOPHORECTOMY AND OVARIOTOMY

This operation, commonly spoken of as "spaying," is performed for certain diseased conditions of the genital organs, and also in healthy subjects, with the object of preventing pregnancy and estrum. Its effect upon the latter is by no means absolutely certain, as upon several occasions we have observed signs of estrum in bitches and cats whose ovaries have been wholly removed, the animals even copulating with the male. Messrs. Leeney, P. J. Simpson, and Cecil French have also observed the same. The term oophorectomy is applied to the operation when the ovaries are healthy, and the term ovariotomy when they are diseased.

Animals may be operated upon at any age, but from six to twelve months for the bitch, and from three to nine months for the cat, seem to be the most favorable.

OPERATION.—Having previously had the abdominal wall around the seat of incision carefully cleansed and shaved, a pad of antiseptic material is put over the part and the animal placed on the operating-table to be anesthetized; when unconscious the patient is turned over and fixed on its back, with the limbs well spread apart. The antiseptic is removed, the skin being lightly scrubbed with ether and again washed with antiseptic lotion. A longitudinal incision of from about half an inch to an inch long is made through the skin and muscular tissue on or close to the median line just behind the umbilicus, all blood-vessels being carefully taken up with artery forceps before the peritoneum is pierced. The latter is done with the point of a scalpel, the incision being completed with the aid of a director. At this stage a blunt probe or flexible catheter may be inserted by an assistant into the vagina, if the operator has not had much previous experience; this generally penetrates as far as the os uteri, occasionally passing into one of the cornua, and acts as a guide. The operator introduces the fore or middle finger of his right hand, or a blunt hook, into the abdomen, keeping it close to the abdominal wall and pushing the intestines on one side, the object being to find one of the cornua or the body of the uterus in which is contained the probe which an assistant is moving cautiously about. Having found this, it becomes an easy matter to follow up each horn in turn until the ovary is reached.

In young animals the ovary may be simply scraped off with a blunt scalpel, but in older ones it is advisable to ligature above and below the ovary with aseptic silk before excising. In either case care must be taken to see that the whole of the ovary is removed, or the animal will be liable to become pregnant, thus defeating one of the main objects of the operation. The cut ends of the cornua are returned into the abdomen, the wound in the abdominal wall being treated as already described (see laparotomy). If only one ovary is removed the animal will readily become pregnant again.

As an instance of pregnancy when a small piece of ovarian tissue is left, on one occasion the author snipped off each ovary with sharp scissors as closely as possible, without injuring the fallopian tubes or the attachment of the uterine horns to the lumbar peritoneum, or using any ligatures. Apparently every particle of ovarian tissue was removed so far as the naked eye could see, but in reality a microscopical portion in each case must have been left, as within three months the patient, a cat, had two kittens. Laparotomy was performed a

second time, and it was found that the ovarian tissue had already become regenerated, on one side to the size of a pea, and on the other to the size of a horse-bean. Both were cystic. They were removed, this time after the application of a ligature, and the patient did well.

The results are excellent if antiseptic precautions are observed. The chief unfavorable sequelæ to be feared are those of shock, peritonitis, descent of the bowels, hernia, and persistent disinclination to feed. The first and last mentioned have sometimes given rise to anxiety, especially in cats, several patients having refused to feed, although apparently all right in every other particular, and post-mortem examinations have given no clue as to the cause of death. Iodoform powder and other dressings which are at all poisonous should be avoided for wounds on small dogs and cats, and we have had opportunity to prove that iodoform dressings are toxic. Peritonitis can be avoided by rigid attention to antiseptic precautions, and by putting the animals in a clean place after the operation. This assertion is made upon the carefully recorded results of more than 250 consecutive oophorectomies or ovariotomies in the bitch, in no single instance of which did death occur from peritonitis or any other cause. To avoid hernia and descent of the bowels, the patient should be kept quiet, and not be allowed to jump from any height, or go up and down steps, for two or three weeks after the operation.

One cat patient unexpectedly developed most peculiar and vicious maniacal propensities immediately after the operation, and ultimately became paralyzed in the hind quarters, a post-mortem examination revealing nothing whatever to account for death. *With cats one can never give so confident a prognosis as to the sequel as with a bitch.*

By way of illustrating how little disturbance the operation causes when done under chloroform and antiseptic precautions, the following case (No. 54 of a series published in the *Veterinary Record* for July 8, 1899) is worth recording: An Irish terrier, aged eighteen months, in estrum, had the urinary bladder very much distended at the time of operating, and, by an unfortunate slip of the scalpel, this organ was incised. A quantity of urine escaped into the abdominal cavity, being afterward soaked up with antiseptic wadding, and the bladder wound was closed by three Lembert's sutures. The oophorectomy was proceeded with and finished in the usual way. The cutaneous wound healed by first intention, the sutures being removed four days later. An absolutely uneventful recovery took place, and the patient was sent home a week later. Three or four days after her arrival home she was still observed to be in estrum, and even allowed the dog to line her twice—this notwithstanding the fact, of which I am absolutely sure, that ligatures were placed well above and below each ovary and every particle of these organs removed. Of course, no pregnancy or further sequel of that kind resulted.

It is worth while to mention here that a spayed bitch, or one that has been in any way improperly tampered with, is disqualified from competition (or from receiving a prize if awarded) in any show held under Kennel Club rules.—FREDRICK T. G. HOBDAY, F. R. C. V. S., in *Surgical Diseases of the Dog and Cat.*

A very small amount of practice will enable any one to readily perform this operation without the use of probe as here directed. Many veterinarians do not introduce the finger into the abdominal cavity but with reasonable aseptic precautions the use of the finger instead of artery forceps for picking up the ovary is not objectionable.

Gombault's Caustic Balsam

On page 683 of the August issue a request was made for the formula of Gombault's caustic balsam. To this request about twenty-five replies were received, not all of them the same. The following formula given in "Secrets of Specialists," as that of Gombault's caustic balsam, was sent in by Drs. D. A. Gorman, Kittaning, Pa.; W. A. Penrod, Anna, Ohio; Chas. E. Walcher, Witt, Ill.; D. F. Bowersox, Aaronsburg, Pa.; T. L.

Brown, Janesville, Wis.; Moyle & Son, Waterford, Wis., and J. W. Morgan, Graham, Mo., all of whom say this formula produces a product essentially the same in physical appearance and therapeutic effect as the well-known nostrum of that name.

℞

Croton oil	drs. 4
Cottonseed oil	ozs. 2
Oil of camphor	dr. 1
Oil of turpentine	dr. 2
Oil of thyme	dr. ½
Kerosene	drs. 4
Sulphuric acid	min. 20

To the mixture of croton and cottonseed oils add the sulphuric acid, stirring continually, then add the other constituents. After standing a few days it resembles the original preparation fairly well.

Dr. G. Ed. Leech, Winona, Minn., thinks the following formula will answer every purpose of that of the original proprietary:

℞

Sulphuric acid (by w'ht)	oz. av. 1
Croton oil	fl. oz. 1
Corrosive sublimate	grs. 60
Camphor	oz. ½
Oil of turpentine	fl. ozs. 6
Cottonseed oil	fl. ozs. 8

Mix the turpentine and croton oil, add the corrosive sublimate in fine powder and the camphor, and dissolve, then add the sulphuric acid, taking care that the mixture does not become too hot; when all has been added and the mixture has become cool, add the cottonseed oil, and mix thoroughly.

Dr. Wm. A. Ewalt, Mt. Clemens, Mich., sends the following formula from the *Drugstore Register*, which he believes to closely simulate the original:

℞

Oil of red thyme	3 parts
Oil of amber	18 "
Oil of rosemary	10 "
Camphor	20 "
Alcohol	30 "
Sulphuric acid	90 "
Oil of turpentine	340 "
Sulphurated oil	2190 "

Mix properly, stirring the acids into the other liquids, mixed and allowed to cool.

Dr. S. R. Howard, Hillsboro, Ohio, sends the following interesting account:

On page 683 of the August issue of VETERINARY MEDICINE a subscriber asks for formula of Gombault's caustic balsam.

Gombault's caustic balsam states on its labels that it is a safe, speedy and reliable remedy for curb, splint, sweeney, poll-evil, grease heel, capped hock, strained tendons, founder, wind puffs, mange, skin diseases, old sores, dropsical affections, inflammations, throat difficulties, swellings or ulcerations, lameness from sprain, ring bone and other bony tumors, and also many other diseases or ailments of horses, cattle, sheep and dogs; will quickly remove all bunches or blemishes, without leaving any scar or other injurious effects. It can also be reduced with sweet or raw linseed oil and used as a most valuable liniment for all kinds of simple lameness, strains, etc.

The following formula makes a preparation which replaces the secret article to good advantage:

℞

Croton oil	drs. 4
Cottonseed oil	ozs. 2
Oil of camphor	oz. 1
Oil of turpentine	drs. 2
Oil of thyme	dr. ½
Kerosene	drs. 4
Sulphuric acid	m. 20

To the mixture of croton and cottonseed oils add the sulphuric acid, stirring continually, then add the other constituents. After standing a few days it resembles the original preparation fairly well.—*Western Druggist.*

The statement on the Gombault labels bears such a striking resemblance to the one found in "The Farriers and Horseman's Complete Dictionary," by Thomas Wallas, Surgeon (Olaf Schwarzkopf take notice), London, 1764, that I have thought it might be entertaining even if not instructive to your readers.

"Accopum or Acopum, in the farrier's dispensatory, a topical medicine used by the ancients, both externally as an ointment or charge, and internally as an electrary. The accopum was in great reputation for horses, from the time of Theomnestus, who cured a horse he loved exceedingly that was frozen almost

stiff, while he carried his master from Paonia into Italy over the mountains, in a violent storm, which killed many horses of the army.

"This preparation is as follows:

"Take of euphorbium two ounces, castoreum four ounces, adraces half a pound, bedellium three ounces, pepper one pound, fox-grease two ounces, oppoponax four ounces, lacerpitium three ounces, of ammoniacum half a pound, pigeon's dung as much, galvanum two ounces, of nitrum five ounces, spuma nitri three ounces, labdanum one pound, of pyrethrum and bay-berries, of each three ounces, cardamums eight ounces, rueseed half a pound, agnus castus four ounces, parsley seeds two ounces, dried roots of iris or flower-de-luce five ounces, hyssop and caripobalsamum, of each one pound, oil of flower-de-luce and oil of bays, of each one pound and a half, oil of spikenard three pounds, oleum cyprinum, three pounds and a half, of the oldest olive oil you can possibly get six pounds, of pitch not smelling of the smoke, one pound eight ounces, turpentine one pound, melt all the liquid ingredients by themselves; beat the hard ingredients and mix them together over a gentle fire; and when they are dissolved and thoroughly incorporated, strain the whole composition and keep it for use.

"This is a very old composition but it is extremely hot and penetrating, and if it could be easily made might be of good service outwardly applied after the manner of a charge in all paralytic numbness, in all old griefs of the joints, sinews, and all other nervous parts where there is either dryness or too much relaxation and softness. The ancients used it in all such cases and likewise were wont to dissolve it and squirt it into the nose in violent colds and in all disorders of the head. They also gave it as a confection inwardly in all cases of malignity, dissolved in a cup of wine.

"But some of the ingredients, as the oil of spikenard and oleum cyprium are not now to be had, though they might be supplied by adding a sufficient quantity of spikenard in powder and increasing the quantity of the oil of bays."

—*Gibson's Farrier's Dispensatory.*

Another reader sends us the same formula for the caustic balsam and adds this one, which is also given in "Secrets of Specialists," for "Kendall's Spavin Cure":

The following formula makes a preparation substantially the same as the proprietary liniment:

℞

Turpentine	oz. 1
Alcohol	ozs. 2
Camphor	drs. 4
Iodine (crystals)	grs. 25
Petroleum oil (heavy)	dr. ½

In the mixed oils without filtering dissolve the camphor and the iodine.

Readers have asked during the month for the formulas of "Spohn's Distemper Cure," "Save The Horse," "Absorbine," "Reducine," "Visio."

All of these, like "Gombault's caustic balsam," are much used proprietaries. They are secret medicines, notwithstanding "there are no secrets in medicine."

Veterinarians who are able to inform their clients just what their (the client's) panacea is composed of and to make it for him at a fraction of the cost of the original, are in a fair way to increase their income and save money for their clients at the same time. Therefore we ask those who know the approximate formulas of any or all of the above to give us this information in order that we may pass it on to the whole profession.

Pleurisy—Lameness; A Query

On page 676 of the July issue of VETERINARY MEDICINE, J. E. K., California, requests diagnosis of seven-year-old gelding which on being driven turns his nose to his side as if in pain. If the doctor will inquire into history of his patient perhaps he will find that at one time he was afflicted with pleurisy or pleuro-pneumonia which left an adhesion of lungs

to the costal pleura. On being exercised the disturbed circulation at that point causes severe pain.

Will you kindly print an article or series of articles on the diagnosis of lameness by the process of elimination? I am sure it will meet with favor from all.

Query: An eight-year-old draft horse bought off the plow by horse buyer presented well defined side bones in both feet. He did not go lame when trotted up and down the country road. The farmer drove him into town a distance of thirteen miles and the buyer claims he traveled sound. Following day he became lame, in right front; the next day the lameness was a little more aggravated. A thorough examination was made and no cause for the lameness found. There is no evidence of pain on pinching the hoof over the side bones. He steps a little short with the affected leg. There seems to be every indication that the trouble is not above the foot, yet on pressing, tapping and pinching the foot or the side bones, no pain is shown.

Do side bones cause lameness where no apparent sensibility to manipulation results?

L. N. PETERSON.

Cullom, Ill.

A Barbecue for Veterinarians

Did you ever attend a real old fashioned genuine barbecue? Did you ever stand at the table in the woods and eat until it seemed as if you would burst, and could hardly stop eating because the "nigger" had done the sheep and the pig to such a good turn, and then glance around and see that the assembled crowd had hardly made a showing on the amount provided?

All who attended the semi-annual meeting of the Ohio Valley Veterinary Medical Association at Henderson, Kentucky, July 19, 1911, had such an experience, one they will not soon forget. The "feed," however, was but a small part of the good things in store, for all who attended were profited by the literary program held in a nearby pavilion.

Dr. W. G. Hassell of Grayville, Ill., gave a paper on "The Result of Three Surgical Operations." Dr. F. T. Eisenman, State Veterinarian of Kentucky, gave a very interesting talk on the status of the law regarding the tuberculin test in Kentucky. In part he said that the law now provided for the testing of all dairy cattle and prohibited shipment into the state of untested cattle.

Great credit is due the local committee, Drs. Campbell and Youngblood, for the pleasant manner in which this meeting was conducted, and the only regret of those present was that a larger number of the members of the Association were not present.

Investigating Canker

Dr. B. F. Kaupp, pathologist in the Division of Veterinary Science, of the Colorado Agricultural College, is making careful investigation into the pathology of canker or foot-ill in horses. This subject has been investigated by only one pathologist and his

studies were by no means complete. The disease is a common one, and the investigation one from which we may hope for important results.

Dr. Kaupp should have the co-operation of every practitioner who can aid him in this investigation. At the present time he needs material for study and lots of it. He desires practitioners to send him material as follows:

1. A photograph of the case.

2. The entire foot where the horse is destroyed (remove the shoe and disarticulate at the pastern).

3. In case of operation only, send a section at least one inch square and extending from the granulating surface to the periosteum. Specimens should be sent from sole, frog and wall if all three be diseased and operated upon. Label each specimen to show the section it is from.

The specimens should be placed in from five to ten percent formalin solution. Send small specimens by mail, entire feet by express.

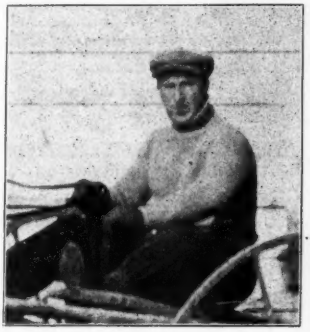
4. Give complete history, course and treatment of the case from which each specimen is sent.

Address Dr. B. F. Kaupp, Pathologist, Colorado State College, Fort Collins, Colo.

Do You Know the Whereabouts of A. E. Cline

Until recently A. E. Cline has been engaged in a livery business and veterinary practice at Ambrose, North Dakota.

In the short space of one year he managed to get heavily into debt, and it is alleged squandered a considerable sum of money belonging to his wife. Recently he left Ambrose for parts unknown and appeared the next day in Minneapolis, where he gave several checks on an Ambrose bank in which he had no deposit and the day following he went through the same performance in Chicago.



A. E. CLINE

Cline carries blank checks on which is printed "Ambrose Livery Co., Dr. A. E. Cline, Manager," and he signs his checks A. E. Cline, V. S. He is about five feet eight or nine inches tall and weighs about 165 to 175 pounds. He is nearly bald on top of his head, of Hebrew extraction but claims to be German; has lived in Beckley, W. Va.; Hinton, W. Va.; Plaza, N. D.; Berthold, N. D.; Ft. Riley, Kan.; as well as Ambrose within a few years. He claims to be a graduate of the Ontario Veterinary College and up to six years ago a veterinarian in the army, stationed at Ft. Riley, Kansas. By means of his worthless checks, he has victimized a number of veterinary supply houses and is well supplied with instruments and books, which he may try to sell or he may start to practice under an assumed name in some place where he is not known.

If any reader knows of the whereabouts of this deadbeat he should write or wire us at once, and we will put the information into the hands of proper officials. He is a base impostor and rascal and he will bring discredit upon the veterinary profession wherever he is.

Legal proceedings have been instituted to stop L. G. Kelly of Thompson, N. D., from practising veterinary medicine without a license.

As Others See Us

"O, wad some pow'r the giftie gi'e us
To see ourselves as others see us.
It wad frae monie a blunder free us
And foolish notion."

We give below numerous clippings from the daily and weekly press. These paragraphs concerning veterinarians are of importance to the profession as a whole not only for the news they convey, which is interesting to most of us, but also because they hold up to us, as it were, the mirror through which we may see ourselves as the general public sees us. The laity, it must be remembered, do not attend our meetings or read our journals. Their general view of the profession is obtained through just such items as the clippings here given contain. The public's estimate of veterinarians, as a class, is of importance to each of us.

The clippings given below, taken from papers published in every part of our country, were nearly all secured during the week before this issue of VETERINARY MEDICINE went to press. Obviously we do not see everything of this kind that is published and for lack of space we cannot publish all that we do see, but we ask that readers send us everything they find in local papers pertaining to veterinarians or diseases of animals and we will select from the whole, and publish, that which appears of most interest.

Dr. A. Van Rosenberg has been appointed by the State Veterinarian to test cattle, horses and other live stock intended for interstate shipment.
Big Rapids (Mich.) *Herald.*

—

Dr. J. D. Sprague has enlarged his office, frescoed the walls, installed new furniture and made many improvements about his hospital. The entire location presents a very tidy and prosperous appearance.
—*The Press*, David City, Nebr.

—

Dr. J. G. Schoeck reports the remarkable recovery of a broken leg in a cow. A plaster-of-paris cast was used and a complete cure effected.—*Troy* (Ill.) *Call.*

—

Dr. Philimine Gingras, one of the most widely known veterinarians in eastern Connecticut and Rhode Island, died suddenly in his home in Jewett City. Besides being a prominent veterinarian he was an organizer of French republican clubs and very prominent in naturalization work among these people. Dr. Gingras was sixty years of age.
—*New York Herald.*

Dr. A. T. Hartbeck was recently drowned in the flood near Petersburg.
—*Clinton* (Ia.) *Advertiser.*

—

Dr. F. R. Whipple, for four years head of the veterinary department of the West Virginia University, has resigned his position and opened an office for practice at 204 Hamilton St., this city. Dr. Whipple is a graduate of the McKillip Veterinary College and was for several years employed by the U. S. Bureau of Animal Industry in the capacity of Veterinary Inspector.
—*Peoria* (Ill.) *Star.*

—

Dr. Thomas W. Gidley has been appointed assistant State Veterinarian by Gov. B. F. Carroll. This is quite an honor for T. W., but he will fill the bill all right, and we are pleased to note this recognition of his ability.
—*Malvern* (Ia.) *Leader.*

—

Dr. David William Hughes has just occupied his new veterinary hospital. This building is about 100 feet in length and 25 feet in width and two stories high, including a basement. It is

equipped with the most modern appliances. This is the second such institution for Knoxville.

—*Knoxville* (Tenn.) *Sentinel.*

—

Dr. Charles L. Dawson, well known as veterinarian and bacteriologist for the Delaware Experiment Station, has resigned, and is considering an offer to become State Veterinarian of Florida.

—*Pittsburg* (Pa.) *Press.*

—

Because of a political change in the administration of Colorado, Dr. Chas. G. Lamb has been succeeded as State Veterinarian by Dr. W. W. Yard. Dr. Yard has been secretary of the State Board of Veterinary Examiners, and this leaves a vacancy on the board. The State Veterinarian receives an annual salary of $1,500 and serves for a term of two years.—*Denver* (Colo.) *Times.*

—

It is reported that hydrophobia prevails among the cows in Kewaunee county. Many dogs are suffering from that disease near Kewaunee.

—*Milwaukee* (Wis.) *Sentinel.*

—

Dr. J. I. Gibson, State Veterinarian, has recently located nine horses affected with glanders in the immediate vicinity of Council Bluffs. These horses are part of a shipment received from South Dakota. Two of these horses had been turned into a 700-acre wooded pasture two miles from the city, and a number of other horses in the pasture have been exposed to the disease and are now under quarantine.—*Omaha* (Nebr.) *Bee.*

—

Dr. Geo. R. White, the newly appointed Live Stock Inspector, has mailed instructions to all county health officers of the State regarding the tuberculin testing of Tennessee cows. Dr. White expects to have every milk cow in the State of Tennessee given the tuberculin test and tuberculosis entirely eradicated from Tennessee cattle within the next two years. Only about three per cent of the cattle in the State are proving tubercular on examination.

—*Nashville* (Tenn.) *Banner.*

—

The State Board of Health is carrying on a campaign of dairy inspection throughout the State. The principal dairies in nine counties have already been inspected. After January first when the pure food law goes into effect the sale of milk from any dairy in which tubercular cattle are present will be prohibited, and the dairymen throughout the State are being supplied with rules of the State Board relative to what shall constitute a sanitary dairy. Veterinarians are employed for inspectors.

—*Billings* (Mont.) *Gazette.*

—

At the annual meeting of the Marshall County Veterinary Association, Dr. L. L. Diller, of this city, was chosen president; Dr. J. R. Underwood, of Nevada, vice-president; Dr. C. A. Noggle, of this city, secretary; and Dr. F. J. Neiman, of this city, treasurer.

—*Marshalltown* (Ia.) *Times.*

—

The State Agricultural College now has on hand a supply of antihog-cholera serum to send out to farmers in districts where hog cholera prevails. The serum is furnished at cost; 60 cents for enough for a dose for a hundred-pound hog. Two sizes of syringes are furnished: one an 80-Cc. syringe for $5.50; the other a 30-Cc. syringe for $4.50. Hog cholera is very prevalent in the state and farmers should take means to treat their herds early, if at all. There is no use to wait until the hogs are sick or half dead before sending for the serum, because it would then be too late to do any good.

—*Fayetteville* (Ark.) *American.*

—

In a conference between the Citizens Committee and the city officials at the mayor's office recently it was decided to build a city abattoir and to institute inspection of all meat killed for use at this place.

—*Austin* (Tex.) *Statesman.*

—

In his monthly report for July, City Veterinarian, J. Plummer Baldwin, shows that glanders among horses in Norfolk has not been stamped out despite the fact that it was discovered here more than a year ago. Several cases of horses suffering from glanders, the property of private citizens, were killed last month by Dr. Baldwin.

—*Norfolk* (Va.) *Pilot.*

—

Dr. Geo. Sheridan, a veterinarian, has located in this city for practice.

—*Pawnee City* (Nebr.) *Republican.*

—

Dr. A. T. Peters, director of the State Biological Laboratory, addressed the American Veterinary Medical Association in Toronto on the subject of "Hog Cholera and Serum Vaccination."

—*Springfield* (Ill.) *News.*

Of the 650,000 inspections of sheep made in this State by representatives of the United States Bureau of Animal Industry, only 41,500 have been found to be infected with scabies. There have been 64,000 official dippings made by the Government representatives.

—*Louisville* (Ky.) *Post.*

—

Dr. I. Peters, our new veterinarian, has got right into a lucrative practice, and now has all he can do, working both day and night.

—*Palouse* (Wash.) *Republican.*

—

Dr. Cornell, a graduate of the Ontario Veterinary College, has located in our city with an office in Kewley's drugstore. He can be reached by either 'phone.

—*Badape* (Mich.) *Democrat.*

—

Dr. F. A. Blake, a veterinarian formerly of Iowa, has concluded to cast his lot in Caldwell. His headquarters are at Lemaster's drugstore. Dr. Blake has been engaged in veterinary practice for seventeen years.

—*Caldwell* (Idaho) *News.*

—

The right to practice was granted to nine applicants by the North Carolina State Board of Veterinary Examiners in their annual meeting recently. Dr. J. E. Spoon, of Burlington, led the candidates with a grade of 97.8 percent. Dr. Spoon is a graduate in veterinary surgery from the Agricultural and Mechanical College at Raleigh, and also from the Kansas City Veterinary College.

—*Greensboro* (N. C.) *News.*

—

More than 100 applicants for license to practice were examined by the Texas State Board of Veterinary Medical Examiners at their first annual session last month. One of the provisions of the new Veterinary Practice Act of Texas is that the Board shall consider no applications for a license to practice unless the application is accompanied by a diploma from a standard veterinary school or satisfactory proof that the maker holds such a diploma.

—*Dallas* (Tex.) *News.*

—

Dr. C. R. Farmer, who has just graduated from the Kansas City Veterinary College, has located here for the practice of his profession. We are glad to see him come, and wish him success.

—*New Virginian*, Indianola, Ia.

—

The freshman class in veterinary medicine at the State Agricultural College presented an umbrella with a silver handle to Dr. L. W. Goss, assistant professor in that department. Dr. Goss is to be absent for a year's study in German universities.

—*Manhattan* (Kan.) *Industrialist.*

—

Hog cholera has become epizootic in the northern part of Leavenworth County, Kan., and threatens to spread to Atchison County. Several hogs have already died, and the State Veterinarian is trying to check the epizootic.

—*News Press*, St. Joseph, Mo.

—

Assistant State Veterinarian H. M. Sanborn, came in from Cocolalla yesterday and brought with him the first bear story of the season. He killed a fine, fat, yearling cub Sunday, within a mile of Cocolalla.

—*Sandpoint* (Idaho) *News.*

—

Dr. Bostrom, State Veterinarian of Nebraska, has been repeatedly called to Mitchell, Neb., because of glanders among the horses of that place. The outbreak is under control at this time.

—

Dr. Glen Davidson, Detroit, Mich., was recently seriously injured by a kick of a horse he was treating.

—

An ordinance recently enacted by the City Council of Chisholm, Minn., requires the tuberculin testing of all town cows and all other cows from which milk is sold in the city.

—

The Commission on Tuberculosis in Animals has revoked the order issued April 19, suspending Dr. Henry Vanderroest, of Newark, from his position as Veterinarian of the Commission on charges preferred by the New Jersey Veterinary Medical Association. The Commission, in substance, found that there was no evidence of incompetence on the doctor's part; that charges of unreliable testing of cows were not sustained, and that the evidence offered by detectives wholly untrustworthy.

—*Philadelphia Record.*

—

Anthrax is very prevalent about Richland, La., and strict quarantines have been resorted to for its control.

—

Many young cattle near Livingston, Ala., have died from blackleg this season.

The Edgar Robert's Manufacturing Company has recently been incorporated at St. Louis, Mo., for the preparation of home remedies, veterinary remedies and toilet articles.

—

Much tuberculin testing of cows is being done around Chattanooga, Nashville and other parts of Tennessee in obedience to a state regulation which will soon be enforced throughout the State.—*Nashville* (Tenn.) *Banner.*

—

Oliver M. Porter of New Orleans, who was employed for several days recently about Slidell, La., in burning carcasses dead of anthrax, has succumbed to an attack of anthrax.

—

Anthrax is killing many cattle, horses, mules and hogs in the farming community west of Albion, Ill. Flies are credited with spreading the germs of the poison. The State Veterinarian has been vaccinating stock, but it has not seemed to afford immunity, as some of the animals so protected have died.

—*Burlington* (Ia.) *Hawkeye.*

—

Following a long illness from cancer, Dr. J. D. Cants, Sr., a well-known veterinarian of Ogden, Utah, died at his home July 24. Dr. Cants was born in Aberdeen, Scotland, in 1838 and had lived in Utah since 1883.

—*Salt Lake City* (Utah) *Tribune.*

—

The Pennsylvania State Board of Veterinary Medical Examiners licensed thirty-five veterinarians who passed their recent annual examination.

The following are those licensed:

Miller F. Barnes, Polk; Robert L. Berger, Hamburg; Martin Bredt, Philadelphia; Timothy L. Casserly, Washington, D. C.; Herbert B. T. Cooke, Philadelphia; Walter J. Crocker, Philadelphia; Edward M. Curley, Pottsville; William J. Deegan, Burlington; Ernest C. Deubler, Media; Ralph H. Fessler, Pine Grove; Calvert T. Guilfoyle, Philadelphia; Henry T. Haigh, Philadelphia; James H. Hardenbergh, Berkshire; Walter S. Hileman, Williamsburg; Abram L. Holman, Millerstown; Cheston M. Hoskins, Philadelphia; Victor G. Kimball, Philadelphia; Royal B. Koontz, Johnstown; Emory Lutes, Wilkesbarre; Frederick B. Mayer, Towanda; Calvin W. Moyer, Quakertown; Elwin S. Norton, Waymart; Irvin S. Reifsnyder, Pottstown; Meyer S. Schwartz, Philadelphia; Warren B. Shook, Philadelphia; Jacob E. Strickler, Chambersburg; Evan L. Stubbs, Oxford, Pa;. David M. Saxe, Philadelphia.

—

The State Veterinary Society of Wisconsin will meet in Milwaukee during the dairy show, October 10 to 18.

—

An enzootic of anthrax has appeared in the district immediately surrounding Hampshire, Ill. As Hampshire is within the zone that supplies milk to Chicago the appearance of the disease was of unusual interest. Prompt and effective measures for its suppression were taken by Dr. J. M. Wright, State Veterinarian, and the outbreak is now under complete control.

—

State Veterinarian Keane has undertaken a campaign to have the dairies of the State cleaned up and to wipe out all tuberculosis where it exists. Already he has made good progress in Ventura and San Joaquin counties. He is seeking to have an ordinance adopted in every county which provides for the appointment of inspectors who may direct the killing of all cattle found affected with tuberculosis.

—*Los Angeles* (Cal.) *Times.*

—

Stockmen in northern Stanley County are reporting loss of live stock from a disease which is a new one to them, beginning in paralysis of the tongue, and extending to all parts of the body in a short time. Up to the present there have been several losses, and just what remedy to apply is what is puzzling the stock owners. The State Veterinarian has been called upon to help in the situation.—*Sioux Falls* (S. D.) *Argus Leader.*

—

The 150th anniversary celebrating the erection in Lyons (France) of a veterinary school will be held in that city about the middle of May, 1912. Preparations are now forming to commemorate the event in a fitting manner, and invitations are being issued to all veterinary schools in the United States and elsewhere for the purpose of having delegates in as large a number as possible.

—*Boise* (Idaho) *News.*

—

Dr. B. A. Robinson left at noon today for Ottawa to attend a meeting of the Kansas State Board of Veterinary Examiners, of which he is President. The Board will examine fifty applicants for license to practise in this State.

—*Independence* (Kan.) *Reporter.*

At the forty-eighth annual meeting of the American Veterinary Medical Association, held in Toronto, Dr. Samuel Brenton, 121 Alexandrine avenue West, a well-known veterinary surgeon of Detroit, was chosen as President of the body, the highest honor to be paid any of the profession in this country.

Dr. Brenton is a graduate of the Ontario Veterinary College, Toronto, and came to this city in 1887. Since then he has been in active practice here. He was elected first treasurer and was a charter member of the Michigan State Veterinary Medical Association, organized in 1883, and later became president of it. A year ago he was appointed secretary-treasurer of the Michigan State Veterinary Board by Gov. Warner, and also held the office of vice-president of the Association, of which he has been elected to the presidency.

—*Detroit* (Mich.) *Free Press.*

—

Alfred J. Backus, a veterinary surgeon of Potterville, who was charged with practising his profession without a license, had a jury trial before Justice Boyles and was found guilty and ordered to pay a fine of $25 and costs or spend 30 days in jail. He paid. Backus had previously been let off on suspended sentence.

—*Hastings* (Mich.) *Banner.*

—

Dr. J. L. Tyler, Pomona, California, has been appointed a member of the Board of Health of his city.

—

Dr. Jerome Orr has gone to Toronto, Canada, where he will pursue a course of instruction in veterinary surgery, and otherwise gather up a few pickings at one of the best-known horse colleges on the North-American continent.

—*Chicago Examiner.*

A "Cozy Cab" For Bad Weather

Driving in the rain or cold, wet weather has been such a "bugaboo" to veterinarians that our readers are sure to welcome the Cozy Cab, a light, easy-running vehicle which provides instant and complete protection. Read Dr. LeBlanc's letter below:

ST. GABRIEL, LA.

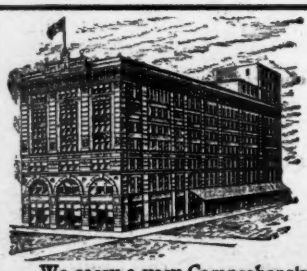
I have given the Cozy Cab a thorough trial and have gone through some rough and cold weather, and can truthfully state that it is absolutely the "greatest comfort on wheels." I find it lighter in weight and easier running than most of the ordinary piano buggies. It is absolutely impossible for mud, rain or anything to reach you. Mine couldn't be bought, if I could not obtain another. My wife is just as enthusiastic about it as I am. Any time you want reference from me to purchasers in my district, you can use my name. I will gladly answer any information that they may wish.

B. O. LEBLANC, M. D.

The Cozy Cab is manufactured exclusively by the Fouts & Hunter Carriage Mfg. Co., Terre Haute, Ind., and is sold direct to veterinarians at factory-to-buyer prices. The manufacturers will be glad to send a complete catalog of Cozy Cabs, postage paid, upon request.

—

In England homeopathic veterinary practice has a large and strong following. In this country it is growing rapidly in favor—mainly by its cures in so many cases where the old way was helpless, and cures that leave the animal in better physical condition than before.—Advertisement of BOERICKE & RUNYON CO., in *Town and Country Journal*, San Francisco.



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